
文勇的新托福黄金精选阅读（原黄金 29 篇）真题[10.0 版本]

【2011 年 11 月 3 日】

更新TPO24 的 3 篇文章

俺常常收到同学们的邮件，要我推荐各种各样阅读材料，问我 iBT 的复习资料中 Barron, Longman, Delta 等等哪个更好。我其实很无奈——因为尽管这些机构很大牌，但大牌丝毫都不意味着文章“质量高”（比如你可以想想三鹿奶粉）——说这些机构的文章质量不高，并不是说文字写得不好，而是说这些文章的句子结构，论述方式，出题思路与 ETS 的并不一致（有时候甚至大相径庭）：用这样的材料训练，实在是事倍功半。

于是，我们实在应该去找找由 ETS 出的 iBT 文章来做：（我们能够找到的由 ETS 编纂的标准 iBT 文章有）

1. OG 之中的 13 篇文章；（其中 3 篇为第三版 OG 之中的文章）；
2. 24 次（套）TPO 之中的 $3 \times 24 = 72$ 篇文章；
3. 早期 报名之时 ETS 赠送的 3 篇在线测试题；
4. ETS 官方给出的模考软件之中抽出的 1 篇文章；

于是这个文档在我的一时兴起之下，出现了：

OG 拿在手上，可以一个个字的敲成电子版；TPO 的所有考试都是在自己的计算机进行，于是可以一边花钱参加考试，一边截图与录像，再利用截下来的图片，逐个的敲下来；早期的 ETS 赠送的 3 篇在线测试题，我也恰好有电子版；官方的模考软件稍微用点功夫，就能将文章提取并复制出来。虽然工作有些繁杂，但总算完成了所有文章的敲打工作。再花了些时间，把这 89 篇文章都做了答案，附在文章的后面。（由于 TPO 之中有 3 篇文章与 OG 中完全重复，于是减去 3 篇，只剩下 89 篇。）同时我还更正了 OG 上几个明显的错误（详见文后附录）当然，我还做出了方便大家理解文章的参考译文，附在文章的后面。

在这 89 篇由 ETS 出的文章没有做完之前，我们实在不应该花时间在任何其他题目之上。我有时候甚至会对着我的弟兄们高呼：“没有把这 89 篇做 3 遍，你好意思上考场么？你好意思花钱在任何一本垃圾书上面么？”

另外，如果你正在准备 iBT-SAT-GRE 的作文部分或者写留学文书，也应该仔细的琢磨一下这些文章：经过 ETS 打磨的文章，无一不是精妙绝伦，极具模仿价值。常常有同学拜托我帮她（他）写 PS，也说起自己的句子怎么看都像是小学生写的（尽管用上了 GRE 里面的单词），于是会随口问我“勇哥，您的写作能力是怎么训练出来的。”我说，“看呗，看呗：托福文章看多了，写作能力自然就提高了。”

“这 ETS 的这些文章真的那么好？”每当听到这个问题，我都会装做赵本山的样子来一句“谁用谁知道～～”

文勇

欢迎进行未删节的转载|且不必告诉我你转载到哪里去|都是一个战壕里面的弟兄啊...

一开始做这件事情的时候，文档之中有不少的typo，还好获得了弟兄们的支持和理解，这个文档的**错误**才慢慢的越变越少。很感激大家对这个文档的关心和帮助，这个文档还是会一直地做下去，为大家提供第一手的托福阅读复习资料。

新增加文章的翻译还在进行当中，请大家耐心等待~:)

既然这些文章都是托福真题，那么它们的出处具体是怎么样的呢？

TPO1 来自网上公布的题目，TPO2 来自OG，TPO3 来自 2006 年 8 月 12 日，

TPO4 来自 2006 年 10 月 8 日，TPO5 来自 2008 年 3 月 8 日，TPO6 来自 2007 年 12 月 10 日

TPO7 来自 2007 年 2 月 24 日/2007 年 12 月 14 日

TPO8 来自 2008 年 2 月 9 日/2008 年 12 月 21 日

TPO9 来自 2008 年 5 月 4 日，TPO10 来自 2008 年 6 月 7 日，

TPO11 来自 2006 年 12 月 8 日（阅读+口语）/2006 年 12 月 15 日（听力+写作）

TPO12 来自 2006 年 12 月 8 日（听力+独立写作）/2006 年 12 月 15 日（阅读+口语）/2007 年 12 月 1 日（综合写作）

TPO13 来自 2006 年 6 月 9 日/2007 年 6 月 30 日

以上统计来自于康老师

<http://tw.myblog.yahoo.com/trenton-kang>

欢迎同学们发邮件给我指出任何的关于这个文档的意见和建议！

liuwenyong@lasedu.com/mail@liuwenyong.com

本版本的修订感谢Jolesia、Joseph、kathyga、cpyxx、shirongye、董浩、续莲、po zang、Daisy、韩丹、Nancy、逍遥天、ascust、张国光、yhw245699145、haowang101、zhangkunbnu05、noah、张亚庆、刘炎、翁莹莹、李思扬、郑洋、马若愚、shangjun zhao、张航waterblue、短笛等同学提出的意见

本文档由 刘文勇出于个人兴趣制作，由陈睿|李想|lovemecc 等协助制作，该行为并不代表任何机构；



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误，免费电话答疑；

若找到五处以上的错

若找到十处以上直接

请吃饭：)

Introduction

Many students sent me E-mail, asking me to recommend some reading materials. Of assorted iBT preparing materials, Barron, Longman, Delta, etc, which is the best? As often as not, I feel at a loss: does brand equal to quality? These branded institutions are highly publicized, however, their passages and questions are not necessarily of quality. Does the brand "Sanlu" mean something to you? "QUALITY and safety are the foundations of social harmony," proclaim posters at the headquarters of the Sanlu Group, until recently one of China's biggest producers of milk powder. Now we all know that Sanlu Scandal has been more than an embarrassment. To say that these "branded" passages are not of quality does not mean they are not stylish, elegant or carefully-written; in fact, I discovered that the passage types, sentence patterns, arguing methods, and arrangement of questions are not quite consistent with, and sometimes even wildly divergent from those of ETS. I reflect that practicing with these materials cannot expect a satisfactory result. At this, we should collect ETS's original passages and questions. Such passages available include:

1. 13 passages in Official Guide (OG);
2. 23 sets from TPO, with 3 passages included in each set, 69 passages in total;
3. 3 passages provided by ETS to the applicants for a test on line in the early time of iBT,
4. 1 passage extracted from the simulated exam software provided by ETS;
(3 passages in TPO are abstracted from OG, so they are exactly the same)

Then, I cannot resist the temptation to make such a text: I typed every letter of the 13 passages in OG into computer; I paid dollars for the TPO and completed it myself, filming the screen and capturing every page. Then I typed all the passages with the help of videos and captured pictures. The 3 passages in the on-line test happened to be available to me; and as for the one passage in the simulated exam, though with a little difficulty, I nevertheless succeeded make an electronic text of it. Of course, I finished all these questions and attached the answer to end of this text. Eventually, the final "deluxe" edition of this text, including 83 passages in aggregate (3 passages in TPO are abstracted from OG, so they are exactly the same. Then taking 3 from 83 leaves 83 passages at last.) I insist that before carefully finished and studied these 80 passages, we should not let ourselves distracted by any other materials. Sometimes, I yelled to my students, only a joke, "If you had not studied these passages and questions 3 times at least, how could you be barefaced enough to sit in the exam room? Shame on you to waste your mother's money buying other costly books!"

In addition, have you got ants in your pants every time you make a stab at writing? Do you go berserk for your personal statement? If you are preparing for the iBT, SAT, GRE, etc, writing, essays, or your personal statement, these passages can also be of help: polished by ETS, words, sentence, and structures of these passages are "epic...", and worth imitating for none-native English users. Frequently, friends asked me to help with their personal statement, complaining why what they had written looked so naïve, immature and awkward, even littered with those "glorious noble" GRE words (Actually, these words made their personal statement even freak!). And they asked, "Wenyong, my brother, how you forged your impressive writing skills?" I said, "Read! Read! And read again! The more you read, the better you write." "Are these iBT passages really so amazing?" I affected a tone of a comedian, "try them!"

How good can these passages be? "They are golden, they are precious, they are diamonds!"

Yours
Wenyong

目录

OG	8
Applied Arts and Fine Arts.....	8
The Origins of Cetaceans	15
Desert Formation	23
Early Cinema.....	32
Aggression	41
Artisans and Industrialization	50
Swimming Machines	59
Nineteenth-Century Politics in the United States	67
The Expression of Emotions.....	76
Geology and Landscape.....	85
《新托福真题详解-阅读分卷》(第一册) 中包含了 TPO1-9 和 Online Test 的题目解析.....	93
TPO-1	93
Groundwater	93
The Origins of Theater	100
Timberline Vegetation on Mountains.....	107
TPO-3	114
Architecture.....	114
Depletion of the Ogallala Aquifer.....	121
The Long-Term Stability of Ecosystems.....	128
Online Test	135
Opportunists and Competitors.....	135
Lascaux Cave Paintings	141
Electricity from Wind	148
TPO-4	155
Deer Populations of the Puget Sound.....	155
Cave Art in Europe	162
Petroleum Resources.....	169
Official Model Exam	176
Meteorite Impact and Dinosaur Extinction.....	176
TPO-5	183
Minerals and Plants.....	183
The Origin of the Pacific Island People	190

The Cambrian Explosion	197
TPO-6	204
Powering the Industrial Revolution.....	204
William Smith.....	211
Infantile Amnesia	218
TPO-7	225
The Geologic History of the Mediterranean.....	225
Ancient Rome and Greece	232
Agriculture, Iron, and the Bantu Peoples.....	239
TPO-8	246
The Rise of Teotihuacán.....	246
Extinction of the Dinosaurs.....	253
Running Water on Mars?	260
TPO-9	267
Colonizing the Americas via the Northwest Coast.....	267
Reflection in Teaching	274
The Arrival of Plant Life in Hawaii	281
《新托福真题详解-阅读分卷》（第二册）中包含了 OG Test 2 和 TPO10-15 的题目解析.....	288
OG Test 2	288
Feeding Habits of East African Herbivores	288
Loie Fuller	295
Green Icebergs.....	302
TPO-10	309
Chinese Pottery.....	309
Variations in the Climate	316
Seventeenth-Century European Economic Growth	323
TPO-11	330
Ancient Egyptian Sculpture.....	330
Orientation and Navigation	337
Begging by Nestlings	344
TPO-12	351
Which Hand Did They Use?	351
Transition to Sound in Film.....	358
Water in the Desert	365

TPO-13	372
Types of Social Groups	372
Biological Clocks.....	379
Methods of Studying Infant Perception	386
TPO-14	393
Children and Advertising	393
Maya Water Problems	400
Pastoralism in Ancient Inner Eurasia.....	407
TPO-15	414
A Warm-Blooded Turtle.....	414
Mass Extinctions	421
Glacier Formation	428
《新托福真题详解-阅读分卷》（第三册）中将包含 TPO16-22 的题目解析.....	435
TPO-16	435
Trade and the Ancient Middle East	435
Development of the Periodic Table	442
Planets in Our Solar System	449
TPO-17	455
Europe's Early Sea Trade with Asia	455
Animal Signals in the Rain Forest	462
Symbiotic Relationships.....	469
TPO-18	476
Industrialization in the Netherlands and Scandinavia	476
The mystery of yawning	483
Lightning.....	490
TPO-19	497
The Roman Army's Impact on Britain	497
Succession, Climax, and Ecosystems.....	504
Discovering the Ice Ages	511
TPO-20	518
Westward Migration	518
Early Settlements in the Southwest Asia	525
Fossil Preservation	532
TPO-21	539

Geothermal Energy	539
The Origins of Agriculture	546
Autobiographical Memory	553
TPO-22	560
Spartina	560
The Birth of Photography	567
The Allende Meteorite	574
TPO-23	581
Urban Climates.....	581
Seventeenth-Century Dutch Agriculture	588
Rock Art of the Australia Aborigines	595
Tpo24	602
Lake Water	602
Breathing During Sleep	609
Moving into Pueblos.....	616
托福阅读知识体系.....	625
乐闻携尔教学培训课程简介.....	626
乐闻携尔 2011 年 11 月及寒假课程.....	630

Applied Arts and Fine Arts

Although we now tend to refer to the various crafts according to the materials used to construct them—clay, glass, wood, fiber, and metal—it was once common to think of crafts in terms of function, which led to their being known as the "applied arts." Approaching crafts from the point of view of function, we can divide them into simple categories: containers, shelters and supports. There is no way around the fact that containers, shelters, and supports must be functional. The applied arts are thus bound by the laws of physics, which pertain to both the materials used in their making and the substances and things to be contained, supported, and sheltered. These laws are universal in their application, regardless of cultural beliefs, geography, or climate. If a pot has no bottom or has large openings in its sides, it could hardly be considered a container in any traditional sense. Since the laws of physics, not some arbitrary decision, have determined the general form of applied-art objects, they follow basic patterns, so much so that functional forms can vary only within certain limits. Buildings without roofs, for example, are unusual because they depart from the norm. However, not all functional objects are exactly alike; that is why we recognize a Shang Dynasty vase as being different from an Inca vase. What varies is not the basic form but the incidental details that do not obstruct the object's primary function.

Sensitivity to physical laws is thus an important consideration for the maker of applied-art objects. It is often taken for granted that this is also true for the maker of fine-art objects. This assumption misses a significant difference between the two disciplines. Fine-art objects are not constrained by the laws of physics in the same way that applied-art objects are. Because their primary purpose is not functional, they are only limited in terms of the materials used to make them. Sculptures must, for example, be stable, which requires an understanding of the properties of mass, weight distribution, and stress. Paintings must have rigid stretchers so that the canvas will be taut, and the paint must not deteriorate, crack, or discolor. These are problems that must be overcome by the artist because they tend to intrude upon his or her conception of the work. For example, in the early Italian Renaissance, bronze statues of horses with a raised foreleg usually had a cannonball under that hoof. This was done because the cannonball was needed to support the weight of the leg. In other words, the demands of the laws of physics, not the sculptor's aesthetic intentions, placed the ball there. That this device was a necessary structural compromise is clear from the fact that the cannonball quickly disappeared when sculptors learned how to strengthen the internal structure of a statue with iron braces (iron being much stronger than bronze).

Even though the fine arts in the twentieth century often treat materials in new ways, the basic difference in attitude of artists in relation to their materials in the fine arts and the applied arts remains relatively constant. It would therefore not be too great an exaggeration to say that practitioners of the fine arts work to overcome the limitations of their materials, whereas those engaged in the applied arts work in concert with their materials.

Paragraph 1: Although we now tend to refer to the various crafts according to the materials used to construct them—clay, glass, wood, fiber, and metal—it was once common to think of crafts in terms of function, which led to their being known as the "applied arts." Approaching crafts from the point of view of function, we can divide them into simple categories: containers, shelters and supports. There is no way around the fact that containers, shelters, and supports must be functional. The applied arts are thus bound by the laws of physics, which pertain to both the materials used in their making and the substances and things to be contained, supported, and sheltered. These laws are universal in their application, regardless of cultural beliefs, geography, or climate. If a

pot has no bottom or has large openings in its sides, it could hardly be considered a container in any traditional sense. Since the laws of physics, not some arbitrary decision, have determined the general form of applied-art objects, they follow basic patterns, so much so that functional forms can vary only within certain limits. Buildings without roofs, for example, are unusual because they depart from the norm. However, not all functional objects are exactly alike; that is why we recognize a Shang Dynasty vase as being different from an Inca vase. What varies is not the basic form but the incidental details that do not obstruct the object's primary function.

1. The word “they” in the passage refers to

- applied-art objects
- the laws of physics
- containers
- the sides of pots

2. Which of the following best expresses the essential information in the highlighted sentence? Incorrect answer choices change the meaning in important ways or leave out essential information.

- Functional applied-art objects cannot vary much from the basic patterns determined by the laws of physics.
- The function of applied-art objects is determined by basic patterns in the laws of physics.
- Since functional applied-art objects vary only within certain limits, arbitrary decisions cannot have determined their general form.
- The general form of applied-art objects is limited by some arbitrary decision that is not determined by the laws of physics.

Paragraph 2: Sensitivity to physical laws is thus an important consideration for the maker of applied-art objects. It is often taken for granted that this is also true for the maker of fine-art objects. This assumption misses a significant difference between the two disciplines. Fine-art objects are not constrained by the laws of physics in the same way that applied-art objects are. Because their primary purpose is not functional, they are only limited in terms of the materials used to make them. Sculptures must, for example, be stable, which requires an understanding of the properties of mass, weight distribution, and stress. Paintings must have rigid stretchers so that the canvas will be taut, and the paint must not deteriorate, crack, or discolor. These are problems that must be overcome by the artist because they tend to intrude upon his or her conception of the work. For example, in the early Italian Renaissance, bronze statues of horses with a raised foreleg usually had a cannonball under that hoof. This was done because the cannonball was needed to support the weight of the leg. In other words, the demands of the laws of physics, not the sculptor's aesthetic intentions, placed the ball there. That this device was a necessary structural compromise is clear from the fact that the cannonball quickly disappeared when sculptors learned how to strengthen the internal structure of a statue with iron braces (iron being much stronger than bronze).

3. According to paragraph 2, sculptors in the Italian Renaissance stopped using cannonballs in bronze statues of horses because

- they began using a material that made the statues weigh less
- they found a way to strengthen the statues internally
- the aesthetic tastes of the public had changed over time
- the cannonballs added too much weight to the statues

4. Why does the author discuss the bronze statues of horses created by artists in the early Italian Renaissance?

- To provide an example of a problem related to the laws of physics that a fine artist must overcome

-
- To argue that fine artists are unconcerned with the laws of physics
 - To contrast the relative sophistication of modern artists in solving problems related to the laws of physics
 - To note an exceptional piece of art constructed without the aid of technology

5. An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

This passage discusses fundamental differences between applied-art objects and fine-art objects.

-
-
-

Answer Choices

- Applied-art objects fulfill functions, such as containing or sheltering, and objects with the same function have similar characteristics because they are constrained by their purpose.
- It is easy to recognize that Shang Dynasty vases are different from Inca vases.
- Fine-art objects are not functional, so they are limited only by the properties of the materials used.
- Renaissance sculptors learned to use iron braces to strengthen the internal structures of bronze statues.
- In the twentieth century, fine artists and applied artists became more similar to one another in their attitudes toward their materials.
- In all periods, fine artists tend to challenge the physical limitations of their materials while applied artists tend to cooperate with the physical properties of their materials.

6. **Directions:** Complete the table below to summarize information about the two types of art discussed in the passage. Match the appropriate statements to the types of art with which they are associated. **This question is worth 3 points.**

TYPES OF ART STATEMENTS

The Applied Arts Select 3

-
-
-

The Fine Arts Select 2

-
-

Statements

- An object's purpose is primarily aesthetic.
- Objects serve a functional purpose.
- The incidental details of objects do not vary.
- Artists work to overcome the limitations of their materials.
- The basic form of objects varies little across cultures.
- Artists work in concert with their materials.
- An object's place of origin is difficult to determine.

参考答案:

1. ○1

This is an example of a simple pronoun-referent item. The highlighted word they refers to the phrase “applied-art objects,” which immediately precedes it, so choice 1 is the correct answer. Often the grammatical referent for a pronoun will be separated from the pronoun. It may be located in a preceding clause or even in the preceding sentence.

2. ○1

It is important to note that the question says that incorrect answers change the original meaning of the sentence or leave out essential information. In this example, choice 4 changes the meaning of the sentence to its opposite; it says that the form of functional objects is arbitrary, when the highlighted sentence says that the forms of functional objects are never arbitrary. Choice 2 also changes the meaning. It says that the functions of applied-art objects are determined by physical laws. The highlighted sentence says that the form of the object is determined by physical laws but the function is determined by people. Choice 3 leaves out an important idea from the highlighted sentence. Like the highlighted sentence, it says that the form of functional objects is not arbitrary, but it does not say that it is physical laws that determine basic form. Only choice 1 makes the same point as the highlighted sentence and includes all the essential meaning.

3. ○2

The question tells you to look for the answer in paragraph 2. You do not need to skim the entire passage to find the relevant information. Choice 1 says that sculptors stopped putting cannonballs under the raised legs of horses in statues because they learned how make the statue weigh less and not require support for the leg. The passage does not mention making the statues weigh less; it says that sculptors learned a better way to support the weight. Choice 3 says that the change occurred only because people’s taste changed, meaning that the cannonballs were never structurally necessary. That directly contradicts the passage. Choice 4 says that the cannonballs weakened the structure of the statues. This choice also contradicts the passage. Choice 2 correctly identifies the reason the passage gives for the change: sculptors developed a way to strengthen the statue from the inside, making the cannonballs physically unnecessary.

4. ○1

You should note that the sentence that first mentions “bronze statues of horses” begins “For example . . .” The author is giving an example of something he has introduced earlier in the paragraph. The paragraph overall contrasts how the constraints of physical laws affect the fine arts differently from applied arts or crafts. The fine artist is not concerned with making an object that is useful, so he or she is less constrained than the applied artist. However, because even a fine-arts object is made of some material, the artist must take into account the physical properties of the material. In the passage, the author uses the example of the bronze statues of horses to discuss how artists had to include some support for the raised foreleg of the horse because of the physical properties of the bronze. So the correct answer is choice 1.

5. ○1, 3, 6

Correct Choices

Choice 1: Applied art objects fulfill functions, such as containing or sheltering, and objects with the same function have similar characteristics because they are constrained by their purpose.

Explanation: As the introductory sentence states, the passage is mainly a contrast of applied-art objects and fine-art objects. The main point of contrast is functionality: applied-art objects are functional, whereas fine-art objects are not. The first part of the passage explains the consequences of functionality for the materials and “basic forms” of applied-art objects. The second part of the passage explains the consequences of not being functional to the materials and forms of fine-art objects. A good summary of the passage must include the definition of “applied-art objects” and the major consequence (objects with the same function will follow similar patterns), so Choice 1 should be included.

Choice 3: Fine-art objects are not functional, so they are limited only by the properties of the materials used.

Explanation: Because the passage contrasts applied art objects and fine-art objects, a good summary should include the basic difference. Including Choice 3 in the summary provides the basic contrast discussed in the passage: applied art objects are functional; fine-art objects are not. Fine-art objects are not as constrained as applied-art objects

because they do not have to perform a function.

Choice 6: In all periods, fine artists tend to challenge the physical limitations of their materials, while applied artists tend to cooperate with the physical properties of their materials.

Explanation: The last paragraph of the passage presents a further consequence of the basic contrast between applied-art objects and fine-art objects. This is the difference between the attitude of fine artists toward their materials and the attitude of applied artists toward their materials. A good summary will include this last contrast.

Incorrect Choices

Choice 2: It is easy to recognize that Shang Dynasty vases are different from Inca vases.

Explanation: Although this statement is true, it is not the main point of the first paragraph or of the passage. In fact, it contrasts with the main point of the paragraph: objects that have the same function are all similar. The last sentence of the first paragraph says that the Shang Dynasty vase and the Inca vase are different in “incidental details,” but the “basic form” is the same. Including Choice 2 in the summary misrepresents the passage.

Choice 4: Renaissance sculptors learned to use iron braces to strengthen the internal

structures of bronze statues. Explanation: Choice 4 summarizes the information in sentences 9, 10, and 11 of paragraph 2. Within the context of the passage, this information helps you understand the meaning of the limitations that materials can impose on fine artists. However, remember that the directions say to choose the statements that express the most important ideas in the passage. The example is less important than the general statements of difference. If Choice 4 is included, then Choice 1 or 3 or 6 would be left out and the summary would be missing an essential point of contrast between fine arts and applied arts.

Choice 5: In the twentieth century, fine artists and applied artists became more similar to one another in their attitudes toward their materials. Explanation: This choice should be excluded because it is not supported by the passage. It is a misreading of paragraph 3, which says that the difference in attitude between fine artists and applied artists has not changed. Obviously, a choice that contradicts the information or argument in the passage should not be part of your summary.

6. ☐ 2, 5, 6

☐ 1, 4

Correct Choices

Choice 1: An object’s purpose is primarily aesthetic. (Fine Arts)

Explanation: This is an example of a correct answer that requires you to identify an abstract concept based on text information and paraphrases of text information. In paragraph 2, sentence 5, the passage states that the primary purpose of Fine Art is not function. Then, in paragraph 2, sentence 11, the passage mentions a situation in which a sculptor had to sacrifice an aesthetic purpose due to the laws of physics. Putting these statements together, the reader can infer that fine artists, such as sculptors, are primarily concerned with aesthetics.

Choice 2: Objects serve a functional purpose. (Applied Arts)

Explanation: This is stated more directly than the previous correct answer. Paragraph 1, sentences 1, 2, and 3 make it clear how important function is in the applied arts. At the same time, paragraph 2 states that Fine Arts are not concerned with function, so the only correct place for this statement is in the Applied Arts category.

Choice 4: Artists work to overcome the limitations of their materials. (Fine Arts) Explanation: This is stated explicitly in the last paragraph of the passage. In that paragraph, it is made clear that this applies only to practitioners of the fine arts.

Choice 5: The basic form of objects varies little across cultures. (Applied Arts) Explanation: In paragraph 1, sentence 5, the passage states that certain laws of physics are universal. Then in sentence 7, that idea is further developed with the statement that functional forms can vary only within limits. From these two sentences, you can conclude that because of the laws of physics and the need for functionality, the basic forms of applied art objects will vary little across cultures.

Choice 6: Artists work in concert with their materials. (Applied Arts)

Explanation: This is stated explicitly in the last paragraph of the passage. In that paragraph, it is made clear that this applies only to practitioners of the applied arts.

Incorrect Choices

Choice 3: The incidental details of objects do not vary.

Explanation: This idea is explicitly refuted by the last sentence of paragraph 1 in reference to the applied arts. That sentence (referring only to applied arts) states that the incidental details of such objects do vary, so this answer cannot be placed in the applied arts category. This subject is not discussed at all in reference to fine art objects, so it cannot be correctly placed in that category either.

Choice 7: An object's place of origin is difficult to determine.

Explanation: This answer choice is implicitly refuted in reference to applied arts in the next to last sentence of paragraph 1. That sentence notes that both Shang Dynasty and Inca vases are identifiable as such based upon differences in detail. By inference, then, it seems that it is not difficult to determine an applied-art object's place of origin. Like the previous incorrect answer, this idea is not discussed at all in reference to fine art objects, so it cannot be correctly placed in that category either.

实用艺术和纯艺术

在现代，人们将根据工艺品的制造材质对他们进行分类，如陶土，玻璃，木头，纤维还有金属。但最初人们根据工艺品的功能将他们通通定义为“实用工艺品”。根据工艺品的实用性，我们可以把手工艺品简单分为：容器，遮蔽物，支撑物。毫无疑问它们都是具有一定功能的物品。这些实用工艺品以自然规律为基础，它们的制作材料及其容纳、支撑、遮盖的内容需要符合这些规律。这些规律在工艺品应用过程中非常普遍，不会因文化信仰、地理条件和气候的改变而改变。如果一个壶没有底座，或者在一侧有一个大开口，那么它在任何传统意义上都很难被视为是一个容器。自然规律决定了实用工艺品的一般形式，而不是武断的结论决定的，它们遵循基本的样式，以至于它们的功能不会变化太大。举个例子，没有屋顶的建筑是很少见的，因为它违反了自然规律。但是，并不是所有的功能物品都一模一样，比如我们知道的为什么商代花瓶和印加花瓶不同。它们的区别不是基本功能的不同，而是那些不影响其基本功能的细节存在区别。

实用工艺品的生产者会着重考虑这件工艺品对自然规律的敏感性。所以人们认为对纯工艺品的生产来说也是一样。但这种推断忽略了两种工艺品之间重要的区别。纯工艺品不像实用工艺品那样会受到自然规律的限制。因为它们最主要的并不是体现其功能性，其实它们仅受限于制作材料的性质。比方说雕塑必须要牢固，这就需要了解质量，重力分布和压力的性质。油画必须有坚固的支架，才能让画布保持绷紧，并且油画不可以有毁损，裂纹，褪色。类似困难都是艺术家们必须克服的，这些困扰往往影响了艺术家对于工艺品的设计。就好像在意大利文艺复兴早期，踢出前腿马匹的青铜像往往有一个金属球置于它的前蹄下。这样设计是因为需要金属球来支撑腿的重量。换言之，摆在那里的金属球是客观条件的需要，而不是艺术家的美学意愿。当雕塑家学会了如何用铁支架加强雕塑的内部结构后（铁比青铜更结实），就不再使用金属球了，由此看来，铁球的使用是对于必要结构性的妥协。

尽管在 20 世纪纯工艺品的制作通常采用新的制造工艺，人们对两种工艺品的的基本态度仍然保持对立。因此，毫不夸张地说，纯艺术工艺品的生产者需要克服原材料的限制进行生产，而从事实用性工艺品的生产者则依据材料的性质来进行生产。

The Origins of Cetaceans

It should be obvious that cetaceans—whales, porpoises, and dolphins—are mammals. They breathe through lungs, not through gills, and give birth to live young. Their streamlined bodies, the absence of hind legs, and the presence of a fluke¹ and blowhole² cannot disguise their affinities with land dwelling mammals. However, unlike the cases of sea otters and pinnipeds (seals, sea lions, and walruses, whose limbs are functional both on land and at sea), it is not easy to envision what the first whales looked like. Extinct but already fully marine cetaceans are known from the fossil record. How was the gap between a walking mammal and a swimming whale bridged? Missing until recently were fossils clearly intermediate, or transitional, between land mammals and cetaceans.

Very exciting discoveries have finally allowed scientists to reconstruct the most likely origins of cetaceans. In 1979, a team looking for fossils in northern Pakistan found what proved to be the oldest fossil whale. The fossil was officially named *Pakicetus* in honor of the country where the discovery was made. *Pakicetus* was found embedded in rocks formed from river deposits that were 52 million years old. The river that formed these deposits was actually not far from an ancient ocean known as the Tethys Sea.

The fossil consists of a complete skull of an archaeocyte, an extinct group of ancestors of modern cetaceans. Although limited to a skull, the *Pakicetus* fossil provides precious details on the origins of cetaceans. The skull is cetacean-like but its jawbones lack the enlarged space that is filled with fat or oil and used for receiving underwater sound in modern whales. *Pakicetus* probably detected sound through the ear opening as in land mammals. The skull also lacks a blowhole, another cetacean adaptation for diving. Other features, however, show experts that *Pakicetus* is a transitional form between a group of extinct flesh-eating mammals, the mesonychids, and cetaceans. It has been suggested that *Pakicetus* fed on fish in shallow water and was not yet adapted for life in the open ocean. It probably bred and gave birth on land.

Another major discovery was made in Egypt in 1989. Several skeletons of another early whale, *Basilosaurus*, were found in sediments left by the Tethys Sea and now exposed in the Sahara desert. This whale lived around 40 million years ago, 12 million years after *Pakicetus*. Many incomplete skeletons were found but they included, for the first time in an archaeocyte, a complete hind leg that features a foot with three tiny toes. Such legs would have been far too small to have supported the 50-foot-long *Basilosaurus* on land. *Basilosaurus* was undoubtedly a fully marine whale with possibly nonfunctional, or vestigial, hind legs.

An even more exciting find was reported in 1994, also from Pakistan. The now extinct whale *Ambulocetus natans* ("the walking whale that swam") lived in the Tethys Sea 49 million years ago. It lived around 3 million years after *Pakicetus* but 9 million before *Basilosaurus*. The fossil luckily includes a good portion of the hind legs. The legs were strong and ended in long feet very much like those of a modern pinniped. The legs were certainly functional both on land and at sea. The whale retained a tail and lacked a fluke, the major means of locomotion in modern cetaceans. The structure of the backbone shows, however, that *Ambulocetus* swam like modern whales by moving the rear portion of its body up and down, even though a fluke was missing. The large hind legs were used for propulsion in water. On land, where it probably bred and gave birth, *Ambulocetus* may have moved around very much like a modern sea lion. It was undoubtedly a whale that linked life on land with life at sea

1. Fluke: the two parts that constitute the large triangular tail of a whale

2. Blowhole: a hole in the top of the head used for breathing

Paragraph 1: It should be obvious that cetaceans—whales, porpoises, and dolphins—are mammals. They breathe through lungs, not through gills, and give birth to live young. Their streamlined bodies, the absence of hind legs, and the presence of a fluke¹ and blowhole² cannot disguise their affinities with land dwelling mammals. However, unlike the cases of sea otters and pinnipeds (seals, sea lions, and walruses, whose limbs are functional both on land and at sea), it is not easy to envision what the first whales looked like. Extinct but already fully marine cetaceans are known from the fossil record. How was the gap between a walking mammal and a swimming whale bridged? Missing until recently were fossils clearly intermediate, or transitional, between land mammals and cetaceans.

1. In paragraph 1, what does the author say about the presence of a blowhole in cetaceans?

- It clearly indicates that cetaceans are mammals.
- It cannot conceal the fact that cetaceans are mammals.
- It is the main difference between cetaceans and land-dwelling mammals.
- It cannot yield clues about the origins of cetaceans.

2. Which of the following can be inferred from paragraph 1 about early sea otters?

- It is not difficult to imagine what they looked like.
- There were great numbers of them.
- They lived in the sea only.
- They did not leave many fossil remains.

Paragraph 3: The fossil consists of a complete skull of an archaeocyte, an extinct group of ancestors of modern cetaceans. Although limited to a skull, the *Pakicetus* fossil provides **precious** details on the origins of cetaceans. The skull is cetacean-like but its jawbones lack the enlarged space that is filled with fat or oil and used for receiving underwater sound in modern whales. *Pakicetus* probably detected sound through the ear opening as in land mammals. The skull also lacks a blowhole, another cetacean adaptation for diving. Other features, however, show experts that *Pakicetus* is a transitional form between a group of extinct flesh-eating mammals, the mesonychids, and cetaceans. It has been suggested that *Pakicetus* fed on fish in shallow water and was not yet adapted for life in the open ocean. **It** probably bred and gave birth on land.

3. The word “**precious**” in the passage is closest in meaning to

- exact
- scarce
- valuable
- initial

4. *Pakicetus* and modern cetaceans have similar

- hearing structures
- adaptations for diving
- skull shapes
- breeding locations

5. The word “**It**” in the passage refers to

- Pakicetus*
- fish
- life
- ocean

Paragraph 4: Another major discovery was made in Egypt in 1989. Several skeletons of another early whale, *Basilosaurus*, were found in sediments left by the Tethys Sea and now **exposed** in the Sahara desert. This whale lived around 40 million years ago, 12 million years after *Pakicetus*. Many incomplete skeletons were found but they included, for the first time in an archaeocyte, a complete hind leg that features a foot with three tiny toes. Such legs would have been far too small to have supported the 50-foot-long *Basilosaurus* on land. *Basilosaurus* was undoubtedly a fully marine whale with possibly nonfunctional, or vestigial, hind legs.

6. The word “**exposed**” in the passage is closest in meaning to
- explained
 - visible
 - identified
 - located
7. The hind leg of *Basilosaurus* was a significant find because it showed that *Basilosaurus*
- lived later than *Ambulocetus natans*
 - lived at the same time as *Pakicetus*
 - was able to swim well
 - could not have walked on land
8. It can be inferred that *Basilosaurus* bred and gave birth in which of the following locations
- On land
 - Both on land and at sea
 - In shallow water
 - In a marine environment

Paragraph 5: An even more exciting find was reported in 1994, also from Pakistan. The now extinct whale *Ambulocetus natans* ("the walking whale that swam") lived in the Tethys Sea 49 million years ago. It lived around 3 million years after *Pakicetus* but 9 million before *Basilosaurus*. The fossil **luckily** includes a good portion of the hind legs. The legs were strong and ended in long feet very much like those of a modern pinniped. The legs were certainly functional both on land and at sea. The whale retained a tail and lacked a fluke, the major means of locomotion in modern cetaceans. **The structure of the backbone shows, however, that *Ambulocetus* swam like modern whales by moving the rear portion of its body up and down, even though a fluke was missing.** The large hind legs were used for propulsion in water. On land, where it probably bred and gave birth, *Ambulocetus* may have moved around very much like a modern sea lion. It was undoubtedly a whale that linked life on land with life at sea

9. Why does the author use the word “**luckily**” in mentioning that the *Ambulocetus natans* fossil included hind legs?
- Fossil legs of early whales are a rare find.
 - The legs provided important information about the evolution of cetaceans.
 - The discovery allowed scientists to reconstruct a complete skeleton of the whale.
 - Until that time, only the front legs of early whales had been discovered.
10. Which of the sentences below best expresses the essential information in the **highlighted sentence** in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
- Even though *Ambulocetus* swam by moving its body up and down, it did not have a backbone.
 - The backbone of *Ambulocetus*, which allowed it to swim, provides evidence of its missing fluke.
 - Although *Ambulocetus* had no fluke, its backbone structure shows that it swam like modern whales.

○By moving the rear parts of their bodies up and down, modern whales swim in a different way from the way *Ambulocetus* swam.

11. The word “propulsion” in the passage is closest in meaning to

- staying afloat
- changing direction
- decreasing weight
- moving forward

Extinct but already fully marine cetaceans are known from the fossil record. ■How was the gap between a walking mammal and a swimming whale bridged? ■Missing until recently were fossils clearly intermediate, or transitional, between land mammals and cetaceans.

■Very exciting discoveries have finally allowed scientists to reconstruct the most likely origins of cetaceans. ■In 1979, a team looking for fossils in northern Pakistan found what proved to be the oldest fossil whale. The fossil was officially named *Pakicetus* in honor of the country where the discovery was made. *Pakicetus* was found embedded in rocks formed from river deposits that were 52 million years old. The river that formed these deposits was actually not far from an ancient ocean known as the Tethys Sea.

12. Look at the four squares [■] that indicate where the following sentence can be added to the passage.

This is a question that has puzzled scientists for ages.

Where would the sentence best fit?

13. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some answer choices do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

This passage discusses fossils that help to explain the likely origins of cetaceans—whales, porpoises, and dolphins.

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-
-

Answer Choices

- Recent discoveries of fossils have helped to show the link between land mammals and cetaceans.
- The discovery of *Ambulocetus natans* provided evidence for a whale that lived both on land and at sea.
- The skeleton of *Basilosaurus* was found in what had been the Tethys Sea, an area rich in fossil evidence.
- Pakicetus* is the oldest fossil whale yet to be found.
- Fossils thought to be transitional forms between walking mammals and swimming whales were found.
- Ambulocetus*' hind legs were used for propulsion in the water.

参考答案:

1. ○2

This is a Factual Information question asking for specific information that can be found in paragraph 1. Choice 2 is the best answer. It is essentially a rephrasing of the statement in paragraph 1 that blowholes cannot disguise cetaceans' affinities with other mammals. The other three choices are refuted, either directly or indirectly, by that paragraph.

2. ○1

This is an Inference question asking for information that can be inferred from paragraph 1. Choice 1 is the best answer because paragraph 1 says that sea otters are unlike early mammals whose appearances are not easy to imagine. By inference, then, the early appearance of sea otters must be easy (or not difficult) to imagine.

3. ○3

This is a Vocabulary question. The word being tested is precious. It is highlighted in the passage. The correct answer is choice 3, "valuable." Anything that is precious is very important and therefore valuable.

4. ○3

This is a Factual Information question asking for specific information that can be found in the passage. Choice 3 is the best answer. Paragraph 3 describes the differences and similarities between *Pakicetus* and modern cetaceans. Sentence 3 of that paragraph states that their skulls are similar. The other three choices describe differences, not similarities.

5. ○1

This is a Reference question. The word being tested is It. That word is highlighted in the passage. This is a simple pronoun referent item. Choice I, "*Pakicetus*" is the correct answer. The word It here refers to a creature that probably bred and gave birth on land. *Pakicetus* is the only one of the choices to which this could apply.

6. ○2

This is a Vocabulary question. The word being tested is exposed. It is highlighted in the passage. The correct answer is choice 2, "visible." Exposed means "uncovered." A skeleton that is uncovered can be seen. Visible means "can be seen."

7. ○4

This is a Factual Information question asking for specific information that can be found in the passage. Choice 4 is the best answer because it is the only detail about the skeleton of *Basilosaurus* mentioned in paragraph 4, meaning that it is significant. Choice 1 is true, but it is not discussed in the detail that choice 4 is, and does not represent the significance of the discovery. Choice 3 is not mentioned, and choice 2 is not mentioned.

8. ○4

This is an Inference question asking for a conclusion that can be drawn from the entire passage. Choice 4 is the best answer based on the last sentence of paragraph 4, which describes *Basilosaurus* as a fully marine whale. That implies that everything it did, including breeding and giving birth, could have been done only in a marine environment.

9. ○2

This is an Inference question asking for a conclusion that can be drawn from the passage. Paragraph 5 explains that this discovery provided important information to scientists that they might not have been able to obtain without it. Therefore, you can infer that the discovery was a "lucky" one. The passage offers no support for the

other choices. Therefore, choice 2 is the best answer.

10. ○3

This is a Sentence Simplification question. As with all of these items, a single sentence in the passage is highlighted:

The structure of the backbone shows, however, that *Ambulocetus* swam like modern whales by moving the rear portion of its body up and down, even though a fluke was missing.

Choice 3 is the best answer because it contains all of the essential information in the highlighted sentence. Choice 1 is not true because *Ambulocetus* did have a backbone. Choice 2 is not true because the sentence says that the backbone showed how the *Ambulocetus* swam, not that it was missing a fluke. Choice 4 is untrue because the sentence states that *Ambulocetus* and modern whales swam in the same way.

11. ○4

This is a Vocabulary question. The word being tested is propulsion. It is highlighted in the passage. Choice 4, "moving forward" is the best answer because it means the action of propelling. The whale in the sentence used its hind legs to push itself forward in the water.

12. ○2

This is an Insert Text question. You can see the four black squares in paragraphs 1 and 2 that represent the possible answer choices here.

Extinct but already fully marine cetaceans are known from the fossil record. ■ How was the gap between a walking mammal and a swimming whale bridged? ■ Missing until recently were fossils clearly intermediate, or transitional, between land mammals and cetaceans. ■ Very exciting discoveries have finally allowed scientists to reconstruct the most likely origins of cetaceans. ■ In 1979, a team looking for fossils in northern Pakistan found what proved to be the oldest fossil whale.

The sentence provided is "**This is a question that has puzzled scientists for ages.**" The best place to insert it is at square 2. The sentence that precedes square 2 is in the form of a rhetorical question and the inserted sentence explicitly provides a response to it. None of the other sentences preceding squares is a question, so the inserted sentence cannot logically follow any one of them.

13. ○1, 2, 5

This is a Prose Summary question. It is completed correctly below.

The correct choices are 1, 2, and 5. Choices 3, 4, and 6 are therefore incorrect.

Correct Choices

Choice 1, "Recent discoveries of fossils have helped to show the link between land mammals and cetaceans," is correct because it represents the major idea of the entire passage. The bulk of the passage consists of a discussion of the major discoveries (*Pakicetus*, *Basilosaurus*, and *Ambulocetus*) that show this link.

Choice 2, "The discovery of *Ambulocetus natans* provided evidence for a whale that lived both on land and at sea," is correct because it is one of the major discoveries cited in the passage in support of the passage's main point, that land mammals and cetaceans are related.

Choice 5, "Fossils thought to be transitional forms between walking mammals and swimming whales were found," is correct because like choice 1, this is a statement of the passage's major theme as stated in paragraph 1: these fossils were "clearly intermediate, or transitional between land mammals and cetaceans."

The remainder of the passage discusses these discoveries.

Incorrect Choices

Choice 3, "The skeleton of Basilosaurus was found in what had been the Tethys Sea, an area rich in fossil evidence," is true, but it is a minor detail and therefore incorrect.

Choice 4, "Pakicetus is the oldest fossil whale yet to be found," is true, but it is a minor detail and therefore incorrect.

Choice 6, "Ambulocetus' hind legs were used for propulsion in the water," is true, but it is a minor detail and therefore incorrect.

鲸类的起源

众所周知，鲸类动物是哺乳动物，如鲸鱼、鼠海豚和海豚。它们用肺呼吸，而不是鳃，属于胎生。鲸类动物呈流线型的身体，后腿的消失，尾片和气孔的出现，这些特征都不能掩饰它们和陆生哺乳动物的相似之处。然而，想知道世上第一只鲸长什么样并非易事，不像还原海獭及鳍足类动物（四肢水陆两用如海豹，海狮，海象）的原貌那么简单。一些完全水生的鲸类动物虽然已经灭绝，但仍可通过化石来对它们进行考察。陆栖哺乳动物和海洋鲸类之间有何联系？近期发现的化石已经可以很清晰地帮助人们了解这个问题，以及他们之间的过渡关系。

科学家们通过一些令人振奋的发现重现了鲸类动物几近真实的起源。1979年，在巴基斯坦北部，一个寻找化石的考察队发掘到了最古老的鲸鱼化石。这块化石被官方命名为 *Pakicetus*，以纪念人们发现它的地方。这块化石是在一条河的沉积岩中发现的，这条河有 5200 万年的历史，离古地中海不远。

Pakicetus 包括一个完整原始动物的头盖骨，它的主人是现代鲸类的祖先。尽管只是个头盖骨，但它却提供了研究原始鲸类动物起源的珍贵信息。这个头盖骨和鲸类动物的很像，但它的下颌骨和现代鲸类略有不同，现代鲸类动物的下颌骨中含有额外的空间储存脂肪或者油脂来吸收水下的声音。*Pakicetus* 的主人可能会像陆生哺乳动物那样通过张开的耳朵来探测声音。另外，这个头盖骨没有呼吸孔，而鲸类动物有，这便是鲸类动物为了适应水生环境的另一种适应性表现。然而，专家认为 *Pakicetus* 的其它特征表明它们是已灭绝的食肉哺乳动物（中兽科动物）和鲸类动物的过渡型。有人认为 *Pakicetus* 靠吃浅水的鱼类为生，未能适应在辽阔的大海里生活。它们很有可能在陆地进行生育繁殖。

1989年，在埃及有了另一个重大发现。人们在古地中海残留的沉积物中发现了另一类早期鲸鱼 *Basilosaurus* 的一些骨骸，这些骨骸如今暴露在撒哈拉大沙漠上。*Basilosaurus* 生活在大约 4000 万年前，比 *Pakicetus* 鲸鱼晚了 1200 万年。尽管发现的这些骨骼并不完整，但这是专家们第一次在原始动物身上发现完整的后肢，它有三个小脚趾作为的足部特征。可这些后肢还太小，远无法支撑 50 英尺长的 *Basilosaurus* 在陆地行走。因此，*Basilosaurus* 必定是完全水生的鲸鱼，它们的后肢已经不起任何作用，或者说已经退化。

1994年，巴基斯坦报道了一个更令人兴奋的发现。目前已经灭绝的鲸鱼 *Ambulocetus natans*（可以步行的鲸类）4900 万年前曾在古地中海生活过。比 *Pakicetus* 晚大约 300 万年，比 *Basilosaurus* 早 900 年左右。幸运的是，被发现的 *Ambulocetus natans* 保留着完整的后肢。它的后肢很强壮，底部有长足，非常像现在的鳍足类动物。这些后肢使得他们既能在陆地行走又能在海里游行。虽然 *Ambulocetus natans* 保留了尾巴，但它们缺少现代水生鲸类动物用于行动的主要身体部位——尾片。不过，从 *Ambulocetus* 的脊椎结构上可以看出，即使缺少尾片，它们也能像现代鲸鱼那样通过身体背部的上下摆动来游走。大的后肢通常被当作是水中前行的发动机。在它们可能交配繁殖的陆地上，*Ambulocetus* 行动起来非常像现代海狮。毫无疑问，鲸鱼是连接着陆地生命和海洋生命的物种。

Desert Formation

The deserts, which already occupy approximately a fourth of the Earth's land surface, have in recent decades been increasing at an alarming pace. The expansion of desert-like conditions into areas where they did not previously exist is called desertification. It has been estimated that an additional one-fourth of the Earth's land surface is threatened by this process.

Desertification is accomplished primarily through the loss of stabilizing natural vegetation and the subsequent accelerated erosion of the soil by wind and water. In some cases the loose soil is blown completely away, leaving a stony surface. In other cases, the finer particles may be removed, while the sand-sized particles are accumulated to form mobile hills or ridges of sand.

Even in the areas that retain a soil cover, the reduction of vegetation typically results in the loss of the soil's ability to absorb substantial quantities of water. The impact of raindrops on the loose soil tends to transfer fine clay particles into the tiniest soil spaces, sealing them and producing a surface that allows very little water penetration. Water absorption is greatly reduced; consequently runoff is increased, resulting in accelerated erosion rates. The gradual drying of the soil caused by its diminished ability to absorb water results in the further loss of vegetation, so that a cycle of progressive surface deterioration is established.

In some regions, the increase in desert areas is occurring largely as the result of a trend toward drier climatic conditions. Continued gradual global warming has produced an increase in aridity for some areas over the past few thousand years. The process may be accelerated in subsequent decades if global warming resulting from air pollution seriously increases.

There is little doubt, however, that desertification in most areas results primarily from human activities rather than natural processes. The semiarid lands bordering the deserts exist in a delicate ecological balance and are limited in their potential to adjust to increased environmental pressures. Expanding populations are subjecting the land to increasing pressures to provide them with food and fuel. In wet periods, the land may be able to respond to these stresses. During the dry periods that are common phenomena along the desert margins, though, the pressure on the land is often far in excess of its diminished capacity, and desertification results.

Four specific activities have been identified as major contributors to the desertification processes: overcultivation, overgrazing, firewood gathering, and overirrigation. The cultivation of crops has expanded into progressively drier regions as population densities have grown. These regions are especially likely to have periods of severe dryness, so that crop failures are common. Since the raising of most crops necessitates the prior removal of the natural vegetation, crop failures leave extensive tracts of land devoid of a plant cover and susceptible to wind and water erosion.

The raising of livestock is a major economic activity in semiarid lands, where grasses are generally the dominant type of natural vegetation. The consequences of an excessive number of livestock grazing in an area are the reduction of the vegetation cover and the trampling and pulverization of the soil. This is usually followed by the drying of the soil and accelerated erosion.

Firewood is the chief fuel used for cooking and heating in many countries. The increased pressures of expanding populations have led to the removal of woody plants so that many cities and towns are surrounded by large areas completely lacking in trees and shrubs. The increasing use of dried animal waste as a substitute fuel

has also hurt the soil because this valuable soil conditioner and source of plant nutrients is no longer being returned to the land.

The final major human cause of desertification is soil salinization resulting from overirrigation. Excess water from irrigation sinks down into the water table. If no drainage system exists, the water table rises, bringing dissolved salts to the surface. The water evaporates and the salts are left behind, creating a white crustal layer that prevents air and water from reaching the underlying soil.

The extreme seriousness of desertification results from the vast areas of land and the tremendous numbers of people affected, as well as from the great difficulty of reversing or even slowing the process. Once the soil has been removed by erosion, only the passage of centuries or millennia will enable new soil to form. In areas where considerable soil still remains, though, a rigorously enforced program of land protection and cover-crop planting may make it possible to reverse the present deterioration of the surface.

Paragraph 1: The deserts, which already occupy approximately a fourth of the Earth's land surface, have in recent decades been increasing at an alarming pace. The expansion of desert-like conditions into areas where they did not previously exist is called desertification. It has been estimated that an additional one-fourth of the Earth's land surface is threatened by this process.

1. The word "threatened" in the passage is closest in meaning to
- restricted
 - endangered
 - prevented
 - rejected

Paragraph 3: Even in the areas that retain a soil cover, the reduction of vegetation typically results in the loss of the soil's ability to absorb substantial quantities of water. The impact of raindrops on the loose soil tends to transfer fine clay particles into the tiniest soil spaces, sealing them and producing a surface that allows very little water penetration. Water absorption is greatly reduced; consequently runoff is increased, resulting in accelerated erosion rates. The gradual drying of the soil caused by its diminished ability to absorb water results in the further loss of vegetation, so that a cycle of progressive surface deterioration is established.

2. According to paragraph 3, the loss of natural vegetation has which of the following consequences for soil?
- Increased stony content
 - Reduced water absorption
 - Increased numbers of spaces in the soil
 - Reduced water runoff

Paragraph 5: There is little doubt, however, that desertification in most areas results primarily from human activities rather than natural processes. The semiarid lands bordering the deserts exist in a delicate ecological balance and are limited in their potential to adjust to increased environmental pressures. Expanding populations are subjecting the land to increasing pressures to provide them with food and fuel. In wet periods, the land may be able to respond to these stresses. During the dry periods that are common phenomena along the desert margins, though, the pressure on the land is often far in excess of its diminished capacity, and desertification results.

3. The word “delicate” in the passage is closest in meaning to

- fragile
- predictable
- complex
- valuable

4. According to paragraph 5, in dry periods, border areas have difficulty

- adjusting to stresses created by settlement
- retaining their fertility after desertification
- providing water for irrigating crops
- attracting populations in search of food and fuel

Paragraph 6: Four specific activities have been identified as major contributors to the desertification processes: overcultivation, overgrazing, firewood gathering, and overirrigation. The cultivation of crops has expanded into progressively drier regions as population densities have grown. These regions are especially likely to have periods of severe dryness, so that crop failures are common. Since the raising of most crops necessitates the prior removal of the natural vegetation, crop failures leave extensive tracts of land devoid of a plant cover and susceptible to wind and water erosion.

5. The word “progressively” in the passage is closest in meaning to

- openly
- impressively
- objectively
- increasingly

6. According to paragraph 6, which of the following is often associated with raising crops?

- Lack of proper irrigation techniques
- Failure to plant crops suited to the particular area
- Removal of the original vegetation
- Excessive use of dried animal waste

7. The phrase “devoid of” in the passage is closest in meaning to

- consisting of
- hidden by
- except for
- lacking in

Paragraph 9: The final major human cause of desertification is soil salinization resulting from overirrigation. Excess water from irrigation sinks down into the water table. If no drainage system exists, the water table rises, bringing dissolved salts to the surface. The water evaporates and the salts are left behind, creating a white crustal layer that prevents air and water from reaching the underlying soil.

8. According to paragraph 9, the ground’s absorption of excess water is a factor in desertification because it can

- interfere with the irrigation of land
- limit the evaporation of water
- require more absorption of air by the soil
- bring salts to the surface

9. All of the following are mentioned in the passage as contributing to desertification EXCEPT

- soil erosion
- global warming
- insufficient irrigation
- the raising of livestock

Paragraph 10: The extreme seriousness of desertification results from the vast areas of land and the tremendous numbers of people affected, as well as from the great difficulty of reversing or even slowing the process. Once the soil has been removed by erosion, only the passage of centuries or millennia will enable new soil to form. In areas where considerable soil still remains, though, a rigorously enforced program of land protection and cover-crop planting may make it possible to reverse the present deterioration of the surface.

10. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Desertification is a significant problem because it is so hard to reverse and affects large areas of land and great numbers of people.
- Slowing down the process of desertification is difficult because of population growth that has spread over large areas of land.
- The spread of deserts is considered a very serious problem that can be solved only if large numbers of people in various countries are involved in the effort.
- Desertification is extremely hard to reverse unless the population is reduced in the vast areas affected.

11. It can be inferred from the passage that the author most likely believes which of the following about the future of desertification?

- Governments will act quickly to control further desertification.
- The factors influencing desertification occur in cycles and will change in the future.
- Desertification will continue to increase.
- Desertification will soon occur in all areas of the world.

Paragraph 7: ■The raising of livestock is a major economic activity in semiarid lands, where grasses are generally the dominant type of natural vegetation. ■The consequences of an excessive number of livestock grazing in an area are the reduction of the vegetation cover and the trampling and pulverization of the soil. ■This is usually followed by the drying of the soil and accelerated erosion. ■

12. Look at the four squares [■] that indicate where the following sentence can be added to the passage.

This economic reliance on livestock in certain regions makes large tracts of land susceptible to overgrazing.

Where would the sentence best fit?

13. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some answer choices do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Many factors have contributed to the great increase in desertification in recent decades.

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-

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Answer Choices

○Growing human populations and the agricultural demands that come with such growth have upset the ecological balance in some areas and led to the spread of deserts.

○As periods of severe dryness have become more common, failures of a number of different crops have increased.

○Excessive numbers of cattle and the need for firewood for fuel have reduced grasses and trees, leaving the land unprotected and vulnerable.

○Extensive irrigation with poor drainage brings salt to the surface of the soil, a process that reduces water and air absorption.

○Animal dung enriches the soil by providing nutrients for plant growth.

○Grasses are generally the dominant type of natural vegetation in semiarid lands.

参考答案:

1. ○2

This is a Vocabulary question. The word being tested is *threatened*. It is highlighted in the passage. To threaten means to speak or act as if you will cause harm to someone or something. The object of the threat is in danger of being hurt, so the correct answer is choice 2, "endangered."

2. ○2

This is a Factual Information question asking for specific information that can be found in paragraph 3. The correct answer is choice 2, reduced water absorption. The paragraph explicitly states that the reduction of vegetation greatly reduces water absorption. Choice 4, reduced water runoff, explicitly contradicts the paragraph, so it is incorrect. The "spaces in the soil" are mentioned in another context: the paragraph does not say that they increase, so choice 3 is incorrect. The paragraph does not mention choice 1.

3. ○1

This is a Vocabulary question. The word being tested is *delicate*. It is highlighted in the passage. The correct answer is choice 1, "fragile," meaning "easily broken." Delicate has the same meaning as "fragile."

4. ○1

This is a Factual Information question asking for specific information that can be found in paragraph 5. The correct answer is choice 1: border areas have difficulty "adjusting to stresses created by settlement." The paragraph says that "expanding populations," or settlement, subject border areas to "pressures," or stress, that the land may not "be able to respond to." Choice 2 is incorrect because the paragraph does not discuss "fertility" after desertification. Choice 3 is also incorrect because "irrigation" is not mentioned here. The paragraph mentions "increasing populations" but not the difficulty of "attracting populations," so choice 4 is incorrect.

5. ○4

This is a Vocabulary question. The word being tested is *progressively*. It is highlighted in the passage. The correct answer is choice 4, "increasingly." Progressively as it is used here means "more," and "more" of something means that it is increasing.

6. ○3

This is a Factual Information question asking for specific information that can be found in paragraph 6. The correct answer is choice 3, "removal of the original vegetation." Sentence 4 of this paragraph says that "the raising of most crops necessitates the prior removal of the natural vegetation," an explicit statement of answer choice 3. Choice 1, lack of proper irrigation techniques, is incorrect because the paragraph mentions only "overirrigation" as a cause of desertification. No irrigation "techniques" are discussed. Choices 2 and 4, failure to plant suitable crops and use of animal waste, are not discussed.

7. ○4

This is a Vocabulary question. A phrase is being tested here, and all of the answer choices are phrases. The phrase is "devoid of." It is highlighted in the passage. "Devoid of" means "without," so the correct answer is choice 4, "lacking in." If you lack something that means you are without that thing.

8. ○4

This is a Factual Information question asking for specific information that can be found in paragraph 9. The correct answer is choice 4, "bring salts to the surface." The paragraph says that the final human cause of desertification is salinization resulting from overirrigation. The paragraph goes on to say that the overirrigation causes the water table to rise, bringing salts to the surface. There is no mention of the process "interfering" with or

"limiting" irrigation, or of the "amount of air" the soil is required to absorb, so choices 1,2, and 3 are all incorrect.

9. ○3

This is a Negative Factual Information question asking for specific information that can be found in the passage. Choice 3, "insufficient irrigation," is the correct answer. Choice 1, "soil erosion," is explicitly mentioned in paragraph 2 as one of the primary causes of desertification, so it is not the correct answer. Choice 2, "global warming," is mentioned as a cause of desertification in paragraph 4, so it is incorrect. Choice 4, "raising of livestock," is described in paragraph 7 as another cause of desertification, so it is incorrect. The passage includes excessive irrigation as a cause of desertification, but not its opposite, insufficient irrigation, so that is the correct answer.

10. ○1

This is a Sentence Simplification question. As with all of these items, a single sentence in the passage is highlighted:

The extreme seriousness of desertification results from the vast areas of land and the tremendous numbers of people affected, as well as from the great difficulty of reversing or even slowing the process.

The correct answer is choice 1. That choice contains all of the **essential** information in the highlighted sentence and does not change its meaning. The only substantive difference between choice 1 and the tested sentence is the order in which the information is presented. Two clauses in the highlighted sentence, "The great difficulty of reversing the process" and "the numbers of people affected," have simply been reversed; no meaning has been changed, and no information has been removed. Choices 2,3, and 4 are all incorrect because they change the meaning of the highlighted sentence.

11. ○3

This is an Inference question asking for an inference that can be supported by the passage. The correct answer is choice 3; the passage suggests that the author believes "Desertification will continue to increase." The last paragraph of the passage says that slowing or reversing the erosion process will be very difficult, but that it may occur in those areas that are not too affected already if rigorously enforced anti-erosion processes are implemented. Taken together, this suggests that the author is not confident this will happen; therefore, it can be inferred that he thinks erosion will continue. The passage provides no basis for inferring choices 1, 2, or 4.

12. ○2

This is an Insert Text question. You can see the four black squares in paragraph 7 that represent the possible answer choices here:

■The raising of live stock is a major economic activity in semiarid lands, where grasses are generally the dominant type of natural vegetation. ■The consequences of an excessive number of livestock grazing in an area are the reduction of the vegetation cover and the trampling and pulverization of the soil. ■This is usually followed by the drying of the soil and accelerated erosion. ■

The sentence provided, "**This economic reliance on livestock in certain regions makes large tracts of land susceptible to overgrazing,**" is best inserted at Square 2. The inserted sentence refers explicitly to relying on "livestock in certain regions." Those regions are the ones described in the sentence preceding square 2, which states that raising livestock is "a major economic activity in semiarid lands." The inserted sentence then explains that this reliance "makes large tracts of land susceptible to overgrazing." The sentence that follows square 2 goes

on to say that "The consequences of an excessive number of livestock grazing in an area are. . ." Thus, the inserted sentence contains references to both the sentence before square 2 and the sentence after square 2. This is not true of any of the other possible insert points, so square 2 is correct.

13. ☐ 1, 3, 4

This is a Prose Summary question. It is completed correctly below. The correct choices are 1, 3, and 4. Choices 2, 5, and 6 are therefore incorrect.

沙漠的形成

沙漠已经占据了地球陆地面积约四分之一，而且最近几十年正以惊人的速度扩张。沙漠化是指类似沙漠的环境蔓延到原本并非沙漠的区域。据估计，地球表面另外四分之一的地方正面临沙漠化威胁。

沙漠化主要通过以下过程实现：首先自然植被不断减少，随后风力和雨水加速了土壤的腐蚀。有的时候松散的土壤全部被风刮走，留下石质化的表层；其它情况下细小的沙粒可能会被吹走，而正常沙粒大小的砂子不断堆积，从而形成移动的沙丘或者沙脊。

即便是在保留了土壤表层的区域，植被减少也已成为土壤大量吸取地下水的能力下降的典型因素。雨水对松散土壤的冲击会把细小的粘土颗粒冲到土壤空隙中，封闭了土壤并降低土地表层水的渗透率。地表对水的吸收急剧减少，大量水资源流失，因此土壤的腐蚀率也随即增加。地表吸收水分的能力进一步弱化使得土壤越发干燥，导致植被的进一步流失，于是便形成了土壤沙漠化的恶性循环。

在一些地方，沙漠面积的扩大很大程度上归因于干燥的气候条件。在过去的几千年里，不断增加的温室效应使得一些地方干旱问题愈发严重。倘若空气污染带来的温室效应继续恶化，沙漠化进程会在未来数十年内加速实现。

然而，可以肯定的是，大部分地区沙漠化主要都是由于人类活动造成，而非自然条件导致。沙漠边缘的半干旱土地所处的生态平衡环境非常脆弱，环境压力持续增加，而这些半干旱区域适应环境压力的能力极其有限。人口数量的增加使得人们不断向土地施压，依其提供食物和燃料。在湿润的季节里，土地兴许能够应付这些压力。但是在干旱的季节里，在沙漠周边的土地上，存在着这样一个十分普遍的现象：人类对土地施加的压力远远超过了土地自身减压的能力，因此最终形成了沙漠。

导致沙漠化的主要因素有四个：过度种植，过度放牧，过分砍伐，过度灌溉。由于人口密度增加，人们对粮食作物的种植已经扩展到日益干燥的区域进行。这些区域很有可能经常会发生干旱，所以农作物种植失败是很正常的事情。大多数农作物的种植需要事先移除天然植被，而农作物欠收后又会上留下大面积荒地，非常容易被风力和雨水侵蚀。

在半干旱地区，草坪是主要的天然植被，家畜饲养是当地的一项主要经济活动。在一个地区过量饲养家畜会导致植被覆盖面积减少，土地被大量践踏和碾碎。通常，随之而来的就是土地硬化和加速侵蚀。

在很多国家木材是用来做饭和加热的最主要燃料。人口增加带来的压力促使人们大量砍伐木材，导致许多城市和乡村周围大面积树木和灌木减少。同时人们大量使用烘干的动物排泄物作为替代燃料同样对土壤不利，因为这些珍贵的土壤成分调节剂和植物营养资源将不会再回归至土壤当中。

造成土地沙漠化的最后一个主要人为因素在于人类过度灌溉导致土壤的盐碱化。灌溉多余的水渗透到地下水位。假如没有排水系统的存在，那么地下水位上升，把溶解的盐分带到土壤表面。水分蒸发后，盐分留在了表面，形成白色的地壳层，这一地壳层阻止了空气和水接触地底下的土壤。

沙漠化问题异常严重，这是因为有很广阔的地区和数量庞大的人群都受到了沙漠化的影响，而且要想逆转沙漠化的进程甚至减缓沙漠化的速度都面临着巨大的困难。一旦土壤被侵蚀，需要再经过几百到上千年的时间才会产生新的土壤。那些大量土壤仍保存完好的地方，亟需一个严谨而有力的保护政策和植被覆盖计划来保护现有土地。

Early Cinema

The cinema did not emerge as a form of mass consumption until its technology evolved from the initial "peepshow" format to the point where images were projected on a screen in a darkened theater. In the peepshow format, a film was viewed through a small opening in a machine that was created for that purpose. Thomas Edison's peepshow device, the Kinetoscope, was introduced to the public in 1894. It was designed for use in Kinetoscope parlors, or arcades, which contained only a few individual machines and permitted only one customer to view a short, 50-foot film at any one time. The first Kinetoscope parlors contained five machines. For the price of 25 cents (or 5 cents per machine), customers moved from machine to machine to watch five different films (or, in the case of famous prizefights, successive rounds of a single fight).

These Kinetoscope arcades were modeled on phonograph parlors, which had proven successful for Edison several years earlier. In the phonograph parlors, customers listened to recordings through individual ear tubes, moving from one machine to the next to hear different recorded speeches or pieces of music. The Kinetoscope parlors functioned in a similar way. Edison was more interested in the sale of Kinetoscopes (for roughly \$1,000 apiece) to these parlors than in the films that would be run in them (which cost approximately \$10 to \$15 each). He refused to develop projection technology, reasoning that if he made and sold projectors, then exhibitors would purchase only one machine—a projector—from him instead of several.

Exhibitors, however, wanted to maximize their profits, which they could do more readily by projecting a handful of films to hundreds of customers at a time (rather than one at a time) and by charging 25 to 50 cents admission. About a year after the opening of the first Kinetoscope parlor in 1894, showmen such as Louis and Auguste Lumiere, Thomas Armat and Charles Francis Jenkins, and Orville and Woodville Latham (with the assistance of Edison's former assistant, William Dickson) perfected projection devices. These early projection devices were used in vaudeville theaters, legitimate theaters, local town halls, makeshift storefront theaters, fairgrounds, and amusement parks to show films to a mass audience.

With the advent of projection in 1895-1896, motion pictures became the ultimate form of mass consumption. Previously, large audiences had viewed spectacles at the theater, where vaudeville, popular dramas, musical and minstrel shows, classical plays, lectures, and slide-and-lantern shows had been presented to several hundred spectators at a time. But the movies differed significantly from these other forms of entertainment, which depended on either live performance or (in the case of the slide-and-lantern shows) the active involvement of a master of ceremonies who assembled the final program.

Although early exhibitors regularly accompanied movies with live acts, the substance of the movies themselves is mass-produced, prerecorded material that can easily be reproduced by theaters with little or no active participation by the exhibitor. Even though early exhibitors shaped their film programs by mixing films and other entertainments together in whichever way they thought would be most attractive to audiences or by accompanying them with lectures, their creative control remained limited. What audiences came to see was the technological marvel of the movies; the lifelike reproduction of the commonplace motion of trains, of waves striking the shore, and of people walking in the street; and the magic made possible by trick photography and the manipulation of the camera.

With the advent of projection, the viewer's relationship with the image was no longer private, as it had been with earlier peepshow devices such as the Kinetoscope and the Mutoscope, which was a similar machine that reproduced motion by means of successive images on individual photographic cards instead of on strips of

celluloid. It suddenly became public—an experience that the viewer shared with dozens, scores, and even hundreds of others. At the same time, the image that the spectator looked at expanded from the minuscule peepshow dimensions of 1 or 2 inches (in height) to the life-size proportions of 6 or 9 feet.

Paragraph 1: The cinema did not emerge as a form of mass consumption until its technology evolved from the initial "peepshow" format to the point where images were projected on a screen in a darkened theater. In the peepshow format, a film was viewed through a small opening in a machine that was created for that purpose. Thomas Edison's peepshow device, the Kinetoscope, was introduced to the public in 1894. It was designed for use in Kinetoscope parlors, or arcades, which contained only a few individual machines and permitted only one customer to view a short, 50-foot film at any one time. The first Kinetoscope parlors contained five machines. For the price of 25 cents (or 5 cents per machine), customers moved from machine to machine to watch five different films (or, in the case of famous prizefights, successive rounds of a single fight).

1. According to paragraph 1, all of the following were true of viewing films in Kinetoscope parlors EXCEPT:

- One individual at a time viewed a film.
- Customers could view one film after another.
- Prizefights were the most popular subjects for films.
- Each film was short.

Paragraph 2: These Kinetoscope arcades were modeled on phonograph parlors, which had proven successful for Edison several years earlier. In the phonograph parlors, customers listened to recordings through individual ear tubes, moving from one machine to the next to hear different recorded speeches or pieces of music. The Kinetoscope parlors functioned in a similar way. Edison was more interested in the sale of Kinetoscopes (for roughly \$1,000 apiece) to these parlors than in the films that would be run in them (which cost approximately \$10 to \$15 each). He refused to develop projection technology, reasoning that if he made and sold projectors, then exhibitors would purchase only one machine—a projector—from him instead of several.

2. The author discusses phonograph parlors in paragraph 2 in order to

- explain Edison's financial success
- describe the model used to design Kinetoscope parlors
- contrast their popularity to that of Kinetoscope parlors
- illustrate how much more technologically advanced Kinetoscope parlors were

3. Which of the sentences below best expresses the essential information in the highlighted sentence from the passage? Incorrect answer choices change the meaning in important ways or leave out essential information.

- Edison was more interested in developing a variety of machines than in developing a technology based on only one.
- Edison refused to work on projection technology because he did not think exhibitors would replace their projectors with newer machines.
- Edison did not want to develop projection technology because it limited the number of machines he could sell.
- Edison would not develop projection technology unless exhibitors agreed to purchase more than one projector from him.

Paragraph 3: Exhibitors, however, wanted to maximize their profits, which they could do more readily by projecting a handful of films to hundreds of customers at a time (rather than one at a time) and by charging 25 to 50 cents admission. About a year after the opening of the first Kinetoscope parlor in 1894, showmen such as

Louis and Auguste Lumiere, Thomas Armat and Charles Francis Jenkins, and Orville and Woodville Latham (with the assistance of Edison's former assistant, William Dickson) perfected projection devices. These early projection devices were used in vaudeville theaters, legitimate theaters, local town halls, makeshift storefront theaters, fairgrounds, and amusement parks to show films to a mass audience.

4. The word "readily" in the passage is closest in meaning to
- frequently
 - easily
 - intelligently
 - obviously
5. The word "assistance" in the passage is closest in meaning to
- criticism
 - leadership
 - help
 - approval

Paragraph 4: With the advent of projection in 1895-1896, motion pictures became the ultimate form of mass consumption. Previously, large audiences had viewed spectacles at the theater, where vaudeville, popular dramas, musical and minstrel shows, classical plays, lectures, and slide-and-lantern shows had been presented to several hundred spectators at a time. But the movies differed significantly from these other forms of entertainment, which depended on either live performance or (in the case of the slide-and-lantern shows) the active involvement of a master of ceremonies who assembled the final program.

6. According to paragraph 4, how did the early movies differ from previous spectacles that were presented to large audiences?
- They were a more expensive form of entertainment.
 - They were viewed by larger audiences.
 - They were more educational.
 - They did not require live entertainers.

Paragraph 5: Although early exhibitors regularly accompanied movies with live acts, the substance of the movies themselves is mass-produced, prerecorded material that can easily be reproduced by theaters with little or no active participation by the exhibitor. Even though early exhibitors shaped their film programs by mixing films and other entertainments together in whichever way they thought would be most attractive to audiences or by accompanying them with lectures, their creative control remained limited. What audiences came to see was the technological marvel of the movies; the lifelike reproduction of the commonplace motion of trains, of waves striking the shore, and of people walking in the street; and the magic made possible by trick photography and the manipulation of the camera.

7. According to paragraph 5, what role did early exhibitors play in the presentation of movies in theaters?
- They decided how to combine various components of the film program.
 - They advised film-makers on appropriate movie content.
 - They often took part in the live-action performances.
 - They produced and prerecorded the material that was shown in the theaters.

Paragraph 6: With the advent of projection, the viewer's relationship with the image was no longer private, as it had been with earlier peepshow devices such as the Kinetoscope and the Mutoscope, which was a similar

machine that reproduced motion by means of successive images on individual photographic cards instead of on strips of celluloid. It suddenly became public—an experience that the viewer shared with dozens, scores, and even hundreds of others. At the same time, the image that the spectator looked at expanded from the minuscule peepshow dimensions of 1 or 2 inches (in height) to the life-size proportions of 6 or 9 feet.

8. Which of the following is mentioned in paragraph 6 as one of the ways the Mutoscope differed from the Kinetoscope?

- Sound and motion were simultaneously produced in the Mutoscope.
- More than one person could view the images at the same time with the Mutoscope.
- The Mutoscope was a less sophisticated earlier prototype of the Kinetoscope.
- A different type of material was used to produce the images used in the Mutoscope.

9. The word “It” in the passage refers to

- The advent of projection
- The viewer's relationship with the image
- A similar machine
- Celluloid

10. According to paragraph 6, the images seen by viewers in the earlier peepshows, compared to the images projected on the screen, were relatively

- Small in size
- Inexpensive to create
- Unfocused
- Limited in subject matter

11. The word “expanded” in the passage is closest in meaning to

- was enlarged
- was improved
- was varied
- was rejected

Paragraph 3: ■ Exhibitors, however, wanted to maximize their profits, which they could do more readily by projecting a handful of films to hundreds of customers at a time (rather than one at a time) and by charging 25 to 50 cents admission. ■ About a year after the opening of the first Kinetoscope parlor in 1894, showmen such as Louis and Auguste Lumiere, Thomas Armat and Charles Francis Jenkins, and Orville and Woodville Latham (with the assistance of Edison's former assistant, William Dickson) perfected projection devices. ■ These early projection devices were used in vaudeville theaters, legitimate theaters, local town halls, makeshift storefront theaters, fairgrounds, and amusement parks to show films to a mass audience. ■

12. Look at the four squares [■] that indicate where the following sentence can be added to the passage.

When this widespread use of projection technology began to hurt his Kinetoscope business, Edison acquired a projector developed by Armat and introduced it as “Edison’s latest marvel, the Vitascope.”

Where would the sentence best fit?

13. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some answer choices do not belong in the summary because they express ideas that are not presented in the passage or

are minor ideas in the passage. **This question is worth 2 points.**

The technology for modern cinema evolved at the end of the nineteenth century.

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-
-

Answer Choices

- Kinetoscope parlors for viewing films were modeled on phonograph parlors.
- Thomas Edison's design of the Kinetoscope inspired the development of large screen projection.
- Early cinema allowed individuals to use special machines to view films privately.
- Slide-and-lantern shows had been presented to audiences of hundreds of spectators.
- The development of projection technology made it possible to project images on a large screen.
- Once film images could be projected, the cinema became form of mass consumption.

参考答案:

1. ○3

This is a Negative Factual Information question asking for specific information that can be found in paragraph 1. Choice 3 is the correct answer. The paragraph does mention that one viewer at a time could view the films (choice 1), that films could be viewed one after another (choice 2), and that films were short (choice 4). Prizefights are mentioned as one subject of these short films, but not necessarily the most popular one.

2. ○2

This is a Rhetorical Purpose question. It asks why the author mentions "phonograph parlors" in paragraph 2. The correct answer is choice 2. The author is explaining why Edison designed his arcades like phonograph parlors; that design had been successful for him in the past. The paragraph does not mention the phonograph parlors to explain Edison's financial success, so choice 1 is incorrect. The paragraph does not directly discuss the situations described in choices 3 and 4, so those answers too are incorrect.

3. ○3

This is a Sentence Simplification question. As with all of these items, a single sentence in the passage is highlighted:

He refused to develop projection technology, reasoning that if he made and sold projectors, then exhibitors would purchase only one machine-a projector-from him, instead of several.

The correct answer is choice 3. That choice contains all of the essential ideas in the highlighted sentence. It is also the only choice that does not change the meaning of the sentence. Choice 1 says that Edison was more interested in developing a variety of machines, which is not true. Choice 2 says that the reason Edison refused to work on projection technology was that exhibitors would never replace the projectors. That also is not true; the highlighted sentence implies that he refused to do this because he wanted exhibitors to buy several Kinetoscope machines at a time instead of a single projector. Choice 4 says that Edison refused to develop projection technology unless exhibitors agreed to purchase more than one projector from him. The highlighted sentence actually says that Edison had already reasoned or concluded that exhibitors would not buy more than one, so choice 4 is a change in essential meaning.

4. ○2

This is a Vocabulary question. The word being tested is readily. It is highlighted in the passage. Readily means "easily," so choice 2 is the correct answer. The other choices do not fit in the context of the sentence.

5. ○3

This is a Vocabulary question. The word being tested is assistance; it is highlighted in the passage. An assistant is a person who helps a leader, so choice 3, "help," is the correct answer.

6. ○4

This is a Factual Information question asking for specific information that can be found in paragraph 4. The correct answer is choice 4. Early movies were different from previous spectacles because they did not require live actors. The paragraph states (emphasis added):

*"But the movies differed significantly from these other forms of entertainment, which depended on either **live performance** or (in the case of the slide-and-lantern shows) the active involvement of a master of ceremonies who assembled the final program."*

So the fact that previous spectacles depended on live performances is explicitly stated as one of the ways (but not

the only way) that those earlier entertainments differed from movies. The other answer choices are not mentioned in the paragraph.

7. ○1

This is a Factual Information question asking for specific information that can be found in paragraph 5. The correct answer is choice 1, "They decided how to combine various components of the film program," because that idea is stated explicitly in the paragraph:

"Early exhibitors shaped their film programs by mixing films and other entertainments together."

The other choices, while possibly true, are not explicitly mentioned in the paragraph as being among the exhibitors' roles.

8. ○4

This is a Factual Information question asking for specific information that can be found in paragraph 6. The correct answer is choice 4, "A different type of material was used to produce the images used in the Mutoscope."

The paragraph says that these machines were very similar but that they differed in one particular way:

"... the Mutoscope, which was a similar machine that reproduced motion by means of successive images on individual photographic cards instead of on strips of celluloid."

9. ○2

This is a Reference question. The word being tested is it. That word is highlighted in the passage. Choice 2, "the viewer's relationship with the image," is the correct answer. This is a simple-pronoun referent item. The sentence says that "it" suddenly became "public," which implies that whatever "it" is, it was formerly private. The paragraph says that the "viewer's relationship to the image was no longer private," so that relationship is the "it" referred to here.

10. ○1

This is a Factual Information question asking for specific information that can be found in paragraph 6. The correct answer is choice 1. The paragraph says that the images expanded from an inch or two to life-size proportions, so "small in size" must be correct. The paragraph does not mention the other choices.

11. ○1

This is a Vocabulary Question. The word being tested is expanded. It is highlighted in the passage. Choice 1, "was enlarged," is the correct answer. If something expanded, it grew or got bigger. "Enlarged" also means "grew or got bigger."

12. ○4

This is an Insert Text question. You can see the four black squares in paragraph 3 that represent the possible answer choices here.

■ Exhibitors, however, wanted to maximize their profits, which they could do more readily by projecting a handful of films to hundreds of customers at a time (rather than one at a time) and by charging 25 to 50 cents admission. ■ About a year after the opening of the first Kinetoscope parlor in 1894, showmen such as Louis and Auguste Lumiere, Thomas Armat and Charles Francis Jenkins, and Orville and Woodville Latham (with the assistance of Edison's former assistant, William Dickson) perfected projection devices. ■ These early projection devices were used in vaudeville theaters, legitimate theaters, local town halls, makeshift storefront theaters, fairgrounds, and amusement parks to show films to a mass audience. ■

The inserted sentence fits best at square 4 because it represents the final result of the general use of projectors. After projectors became popular, Edison lost money, and although he had previously refused to develop projection

technology, now he was forced to do so. To place the sentence anywhere else would interrupt the logical narrative sequence of the events described. None of the sentences in this paragraph can logically follow the inserted sentence, so squares 1, 2, and 3 are all incorrect.

13. ☐ 3, 5, 6

This is a Prose Summary question. It is completed correctly below. The correct choices are 3, 5, and 6. Choices 1, 2, and 4 are therefore incorrect.

早期影院

电影院的播放技术从最初的西洋镜形式演变为将影像投影到幽暗的影院屏幕，这一转变使得电影院大众化消费成为可能。在通过西洋镜播放电影的年代里，人们只能通过播放仪器的一个专门设置的小窗口来看电影。到了 **1894** 年，托马斯·爱迪生发明的活动电影放映机公布于众，这种放映机仅适用于活动电影放映室或电影娱乐城。它里面仅包含少量的独立播放器，每次仅允许一个顾客观看一部 **50** 张胶卷的小短片。第一个电影放映厅的放映机中有五台播放器。价格是 **25** 美分/次，（每台播放器观看价格是 **5** 美分）。观众们从一个播放器换到下一个播放器依次观看不同的影片（就像有名的职业拳击赛，每场都要连续进行好几轮比赛）。

这些电影播放厅是仿照留声机播放厅设计的，这也证明了爱迪生前几年的设计非常成功。在留声机播放厅中，顾客们通过独立的耳管听取已经录制好的声音，从一台机器换到另一台听取不同演讲或音乐的录音。电影放映室的功能与之类似。相比之下，爱迪生对这些电影放映机（每台一千美元）的销售更感兴趣，而不是那些需要放映的电影（每部 **10-15** 美元）。他不愿研究投影技术，因为他认为如果研发并且销售投影机，电影放映者就只会买一台投影机而不是几台。

然而，电影放映者们期望将自己的收益最大化，他们希望能更简易地将少量电影同时放映给几百个顾客（而不是每次为一个顾客播放一次电影），每次收费 **25** 到 **50** 美分。在 **1894** 年电影放映机公布的一年之后，摄影师如 **Louis** 和 **Auguste Lumiere**，**Thomas Armat** 和 **Charles Francis Jenkins**，**Orville** 和 **Woodville Latham** 以及爱迪生先前的助手 **William Dickson** 将投影设备变得更加完善。这些早期的投影机在众多场合为大众观众播放电影，如：杂技剧团、正当的影院、当地镇上的礼堂、临时的影院店面、露天游乐场和游乐园等。

随着 **1895-1896** 年间投影机的到来，电影成为了大众消费的最终形式。在此之前，一群观众坐在剧场里观看表演，在那里几百个观众可以同时观看轻歌舞剧、流行戏剧、音乐剧、歌唱表演、古典演奏、演讲和胶片演示等。电影与这些娱乐形式明显的不同点是，电影无需依赖现场表演，也不需要串联全场节目的主持人的积极参与（例如胶片演示）。

尽管早期的电影放映者通常在电影放映时伴有现场表演，但是电影本身的内容是影院事先大量录制下来的，这些材料能在没有表演者或者表演者较少参与的情况在电影院中轻松地再现。即便这样，早期的电影放映者还是将电影和其它娱乐节目或者演讲结合在一起，他们认为用这样的方法能最大限度的吸引观众，他们管理的创造力还是非常有限的。观众们在这里可以看到的电影技术的进步：生活琐事的重现，如火车的运动，海浪拍击海岸，人们在街上行走等；以及由摄影特技和相机操控做出来的特效。

伴随投影机的到来，电影不再属于个别人的消费品。就像之前西洋镜时代的播放设备，如活动电影播放机和早期电影播放机，早期电影播放机播放的都是一系列独立的图像而不是胶片，把单个摄影卡上的图片串联起来形成影像。投影技术使得电影变得更加大众化了，观众能够和十二个、二十个、甚至是上百个人共同观看一部电影。与此同时，观众所看到的图像大小也从狭小的 **1** 英寸或 **2** 英寸西洋镜高度扩展到与实物状的 **6** 英尺或 **9** 英尺。

Aggression

When one animal attacks another, it engages in the most obvious example of aggressive behavior. Psychologists have adopted several approaches to understanding aggressive behavior in people.

The Biological Approach. Numerous biological structures and chemicals appear to be involved in aggression. One is the hypothalamus, a region of the brain. In response to certain stimuli, many animals show instinctive aggressive reactions. The hypothalamus appears to be involved in this inborn reaction pattern: electrical stimulation of part of the hypothalamus triggers stereotypical aggressive behaviors in many animals. In people, however, whose brains are more complex, other brain structures apparently moderate possible instincts.

An offshoot of the biological approach called sociobiology suggests that aggression is natural and even desirable for people. Sociobiology views much social behavior, including aggressive behavior, as genetically determined. Consider Darwin's theory of evolution. Darwin held that many more individuals are produced than can find food and survive into adulthood. A struggle for survival follows. Those individuals who possess characteristics that provide them with an advantage in the struggle for existence are more likely to survive and contribute their genes to the next generation. In many species, such characteristics include aggressiveness. Because aggressive individuals are more likely to survive and reproduce, whatever genes are linked to aggressive behavior are more likely to be transmitted to subsequent generations.

The sociobiology view has been attacked on numerous grounds. One is that people's capacity to outwit other species, not their aggressiveness, appears to be the dominant factor in human survival. Another is that there is too much variation among people to believe that they are dominated by, or at the mercy of, aggressive impulses.

The Psychodynamic Approach. Theorists adopting the psychodynamic approach hold that inner conflicts are crucial for understanding human behavior, including aggression. Sigmund Freud, for example, believed that aggressive impulses are inevitable reactions to the frustrations of daily life. Children normally desire to vent aggressive impulses on other people, including their parents, because even the most attentive parents cannot gratify all of their demands immediately. Yet children, also fearing their parents' punishment and the loss of parental love, come to repress most aggressive impulses. The Freudian perspective, in a sense: sees us as "steam engines." By holding in rather than venting "steam," we set the stage for future explosions. Pent-up aggressive impulses demand outlets. They may be expressed toward parents in indirect ways such as destroying furniture, or they may be expressed toward strangers later in life.

According to psychodynamic theory, the best ways to prevent harmful aggression may be to encourage less harmful aggression. In the steam-engine analogy, verbal aggression may vent some of the aggressive steam. So might cheering on one's favorite sports team. Psychoanalysts, therapists adopting a psychodynamic approach, refer to the venting of aggressive impulses as "catharsis." Catharsis is theorized to be a safety valve. But research findings on the usefulness of catharsis are mixed. Some studies suggest that catharsis leads to reductions in tension and a lowered likelihood of future aggression. Other studies, however, suggest that letting some steam escape actually encourages more aggression later on.

The Cognitive Approach. Cognitive psychologists assert that our behavior is influenced by our values, by the ways in which we interpret our situations and by choice. For example, people who believe that aggression is necessary and justified—as during wartime—are likely to act aggressively, whereas people who believe that a particular war or act of aggression is unjust, or who think that aggression is never justified, are less likely to

behave aggressively.

One cognitive theory suggests that aggravating and painful events trigger unpleasant feelings. These feelings, in turn, can lead to aggressive action, but not automatically. Cognitive factors intervene. People decide whether they will act aggressively or not on the basis of factors such as their experiences with aggression and their interpretation of other people's motives. Supporting evidence comes from research showing that aggressive people often distort other people's motives. For example, they assume that other people mean them harm when they do not.

Catharsis: In psychodynamic theory, the purging of strong emotions or the relieving of tensions.

Paragraph 2: The Biological Approach. Numerous biological structures and chemicals appear to be involved in aggression. One is the hypothalamus, a region of the brain. In response to certain stimuli, many animals show instinctive aggressive reactions. The hypothalamus appears to be involved in this inborn reaction pattern: electrical stimulation of part of the hypothalamus triggers stereotypical aggressive behaviors in many animals. In people, however, whose brains are more complex, other brain structures apparently moderate possible instincts.

1. According to paragraph 2, what evidence indicates that aggression in animals is related to the hypothalamus?

- Some aggressive animal species have a highly developed hypothalamus.
- Electrical stimulation of the hypothalamus delays animals' inborn reaction patterns.
- Animals behaving aggressively show increased activity in the hypothalamus.
- Animals who lack a hypothalamus display few aggressive tendencies.

Paragraph 3: An offshoot of the biological approach called sociobiology suggests that aggression is natural and even desirable for people. Sociobiology views much social behavior, including aggressive behavior, as genetically determined. Consider Darwin's theory of evolution. Darwin held that many more individuals are produced than can find food and survive into adulthood. A struggle for survival follows. Those individuals who possess characteristics that provide them with an advantage in the struggle for existence are more likely to survive and contribute their genes to the next generation. In many species, such characteristics include aggressiveness. Because aggressive individuals are more likely to survive and reproduce, whatever genes are linked to aggressive behavior are more likely to be transmitted to subsequent generations.

2. According to Darwin's theory of evolution, members of a species are forced to struggle for survival because

- not all individuals are skilled in finding food
- individuals try to defend their young against attackers
- many more individuals are born than can survive until the age of reproduction
- individuals with certain genes are more likely to reach adulthood

Paragraph 5: The Psychodynamic Approach. Theorists adopting the psychodynamic approach hold that inner conflicts are crucial for understanding human behavior, including aggression. Sigmund Freud, for example, believed that aggressive impulses are inevitable reactions to the frustrations of daily life. Children normally desire to vent aggressive impulses on other people, including their parents, because even the most attentive parents cannot gratify all of their demands immediately. Yet children, also fearing their parents' punishment and the loss of parental love, come to repress most aggressive impulses. The Freudian perspective, in a sense: sees us as "steam engines." By holding in rather than venting "steam," we set the stage for future explosions. Pent-up

aggressive impulses demand outlets. They may be expressed toward parents in indirect ways such as destroying furniture, or they may be expressed toward strangers later in life.

3. The word “inevitable” in the passage is closest in meaning to

- unavoidable
- regrettable
- controllable
- unsuitable

4. The word “gratify” in the passage is closest in meaning to

- identify
- modify
- satisfy
- simplify

5. The word “they” in the passage refers to

- future explosions
- pent-up aggressive impulses
- outlets
- indirect ways

6. According to paragraph 5, Freud believed that children experience conflict between a desire to vent aggression on their parents and

- a frustration that their parents do not give them everything they want
- a fear that their parents will punish them and stop loving them
- a desire to take care of their parents
- a desire to vent aggression on other family members

7. Freud describes people as “steam engines” in order to make the point that people

- deliberately build up their aggression to make themselves stronger
- usually release aggression in explosive ways
- must vent their aggression to prevent it from building up
- typically lose their aggression if they do not express it

Paragraph 7: **The Cognitive Approach.** Cognitive psychologists assert that our behavior is influenced by our values, by the ways in which we interpret our situations and by choice. For example, people who believe that aggression is necessary and justified-as during wartime-are likely to act aggressively, whereas people who believe that a particular war or act of aggression is unjust, or who think that aggression is never justified, are less likely to behave aggressively.

Paragraph 8: One cognitive theory suggests that aggravating and painful events trigger unpleasant feelings. These feelings, in turn, can lead to aggressive action, but not automatically. Cognitive factors intervene. People decide whether they will act aggressively or not on the basis of factors such as their experiences with aggression and their interpretation of other people's motives. Supporting evidence comes from research showing that aggressive people often distort other people's motives. For example, they assume that other people mean them harm when they do not.

8. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect answer choices change the meaning in important ways or leave out essential information.

- People who believe that they are fighting a just war act aggressively while those who believe that they are fighting an unjust war do not.
- People who believe that aggression is necessary and justified are more likely to act aggressively than those who believe differently.
- People who normally do not believe that aggression is necessary and justified may act aggressively during wartime.
- People who believe that aggression is necessary and justified do not necessarily act aggressively during wartime.

9. According to the cognitive approach described in paragraphs 7 and 8, all of the following may influence the decision whether to act aggressively EXCEPT a person's

- moral values
- previous experiences with aggression
- instinct to avoid aggression
- beliefs about other people's intentions

10. The word “**distort**” in the passage is closest in meaning to

- mistrust
- misinterpret
- criticize
- resent

Paragraph 5: **The Psychodynamic Approach.** Theorists adopting the psychodynamic approach hold that inner conflicts are crucial for understanding human behavior, including aggression. Sigmund Freud, for example, believed that aggressive impulses are inevitable reactions to the frustrations of daily life. Children normally desire to vent aggressive impulses on other people, including their parents, because even the most attentive parents cannot gratify all of their demands immediately. ■Yet children, also fearing their parents' punishment and the loss of parental love, come to repress most aggressive impulses. ■The Freudian perspective, in a sense: sees us as "steam engines." ■By holding in rather than venting "steam," we set the stage for future explosions. ■Pent-up aggressive impulses demand outlets. They may be expressed toward parents in indirect ways such as destroying furniture, or they may be expressed toward strangers later in life.

11. Look at the four squares [■] that indicate where the following sentence can be added to the passage.

According to Freud, however, impulses that have been repressed continue to exist and demand expression.

Where would the sentence best fit?

12. **Directions:** Complete the table below by matching five of the six answer choices with the approach to aggression that they exemplify. **This question is worth 3 points.**

Approach to Understanding Aggression	Associated Claims
Biological approach	•
Psychodynamic approach	• •
Cognitive approach	

-
-

Answer choices

- Aggressive impulses toward people are sometimes expressed in indirect ways.
- Aggressiveness is often useful for individuals in the struggle for survival.
- Aggressive behavior may involve a misunderstanding of other people's intentions.
- The need to express aggressive impulses declines with age.
- Acting aggressively is the result of a choice influenced by a person's values and beliefs.
- Repressing aggressive impulses can result in aggressive behavior.

参考答案:

1. ○ 3

This is a Factual Information question asking for specific information that can be found in paragraph 2. The correct answer is choice 3. The question asks specifically for "evidence that indicates that aggression in animals is related to the hypothalamus." Answer choices 1 and 2 are contradicted by the paragraph. Choice 2 is incorrect because, while the paragraph states that "electrical stimulation" triggers aggressive behavior in many animals, this is not "evidence" in itself, but merely support for the more general statement in choice 3 that increased hypothalamus activity, in general, is related to aggression.

以上内容为 OG 给出的解释，但本人认为此题无正确选项。因为 C 选项中的 **increased activity** 为原文未提及内容，因此 C 项不正确。

B 选项中 **artificial** 错误，因为我们不能从原文当中的电刺激海马体导致动物侵略性推出人工的刺激海马体能导致动物侵略性，这个是一个以偏概全的结论，因此建议将 B 选项中的 **artificial** 改为 **electrical**，则 B 选项为正确选项。

2. ○ 3

This is a Factual Information question asking for specific information that can be found in the passage. The correct answer is choice 3, "many more individuals are born than can survive until the age of reproduction." This answer choice is essentially a paraphrase of paragraph 3, sentence 4: "Darwin held that many more individuals are produced than can find food and survive into adulthood." Choices 1 and 2 are not mentioned at all. Choice 4 may be true, but it is not stated in the passage as a fact; an inference is needed to support it.

3. ○ 1

This is a Vocabulary question. The word being tested is inevitable. It is highlighted in the passage. The correct answer is choice 1, unavoidable. If something is inevitable, that means that it will occur no matter what; in other words, it is unavoidable.

4. ○ 3

This is a Vocabulary question. The word being tested is gratify. It is highlighted in the passage. The correct answer is choice 3, "satisfy." If a person's desires are gratified, those desires are fulfilled. Thus the person is satisfied.

5. ○ 2

This is a Reference question. The word being tested is they. It is highlighted in the passage. The correct answer is choice 2, "pent-up aggressive impulses." This is a simple pronoun-referent item. The word the?) here refers to something that "may be expressed toward strangers later in life." This is the "outlet" toward which the "aggressive impulses" mentioned may be directed.

6. ○ 2

This is a Factual Information question asking for specific information that can be found in paragraph 5. The correct answer is choice 2, "a fear that their parents will punish them and stop loving them." The question asks what causes the conflict between the desire to vent aggression and children's fears. The answer is found in paragraph 5 in the sentence that reads, "Yet children, also fearing their parents' punishment and the loss of parental love, come to repress most aggressive impulses." Answer choice 2 is the only choice that correctly identifies the cause of the conflict created by repressing aggression in children.

7. ○ 3

This is a Rhetorical Purpose question. It asks you why the author mentions that Freud described people as "steam engines" in the passage. The phrase being tested is highlighted in the passage. The correct answer is choice 3,

"must vent their aggression to prevent it from building up." Steam engines will explode if their steam builds up. The same is true of people, as choice 3 indicates. The other choices are not necessarily true of both people and steam engines, so they are incorrect.

8. ○2

This is a Sentence Simplification question. As with all of these items, a single sentence in the passage is highlighted:

For example, people who believe that aggression is necessary and justified-as during wartime-are likely to act aggressively, whereas people who believe that a particular war or act of aggression is unjust, or who think that aggression is never justified, are less likely to behave aggressively.

The correct answer is choice 2. It contains all of the *essential* information in the highlighted sentence. The highlighted sentence compares people who believe particular acts of aggression are necessary and those who don't, in terms of their relative likelihood to act aggressively under certain conditions. This is precisely what choice 2 says: "People who believe that aggression is necessary and justified are more likely to act aggressively than those who believe differently." It compares the behavior of one type of person to that of another type of person. Nothing essential has been left out, and the meaning has not been changed. Choice 1 changes the meaning of the sentence; it says categorically that "those (people) who believe that they are fighting an unjust war do not (act aggressively)." The highlighted sentence merely says that such people are "less likely" to act aggressively, not that they never will; this changes the meaning. Choice 3 says, "People who normally do not believe that aggression is necessary and justified may act aggressively during wartime." This is incorrect because it leaves out critical information: it does not mention people who do believe aggression is necessary. This choice does not make the same comparison as the highlighted sentence. Choice 4, "People who believe that aggression is necessary and justified do not necessarily act aggressively during wartime," also changes the meaning of the sentence by leaving out essential information. In this choice, no mention is made of people who do not believe aggression is necessary. This choice does not make the same comparison as the highlighted sentence.

9. ○3

This is a Negative Factual Information question asking for specific information that can be found in paragraphs 7 and 8. Choice 3 is the correct answer. Choice 1, "moral values," is explicitly mentioned as one of the influences on aggressive behavior; so it is incorrect. Choices 2 ("previous experiences") and 4 sentence in paragraph 8 says, "People *decide* whether they will act aggressively or not on the basis of factors such as their experiences with aggression and their interpretation of other people's motives." Choice 3, the "instinct to avoid aggression," is not mentioned, so it is the correct answer here.

10. ○2

This is a Vocabulary question. The word being tested is *distort*. It is highlighted in the passage. The correct answer is choice 2, "misinterpret." To distort other people's motives is to twist them, or view them incorrectly and thereby not understand them properly. Something that is not understood properly is misinterpreted.

11. ○2

This is an Insert Text question. You can see the four black squares in paragraph 5 that represent the possible answer choices here.

The Psychodynamic Approach. *Theorists adopting the psychodynamic approach hold that inner conflicts are crucial for understanding human behavior, including aggression. Sigmund Freud, for example, believed that aggressive impulses are inevitable reactions to the frustrations of daily life. Children normally desire to vent aggressive impulses on other people, including their parents, because even the most attentive parents cannot*

gratify all of their demands immediately. ■ Yet children, also fearing their parents' punishment and the loss of parental love, come to repress most aggressive impulses. ■ The Freudian perspective, in a sense, sees us as "steam engines." ■ By holding in rather than venting "steam," we set the stage for future explosions. ■ Pent-up aggressive impulses demand outlets. They may be expressed toward parents in indirect ways such as destroying furniture, or they may be expressed toward strangers later in life.

The sentence provided, "**According to Freud, however, impulses that have been repressed continue to exist and demand expression,**" is best inserted at square 2. Square 2 is correct because the sentence being inserted is a connective sentence, connecting the idea of childhood repression in the preceding sentence to the "Freudian perspective" in the sentence that follows. The use of the word *however* in this sentence indicates that an idea already introduced (the repression of children's aggressive impulses) is being modified. Here, the inserted sentence tells us that Freud thought that even though these impulses are repressed, they continue to exist. This serves as a connection to the next sentence and the "Freudian perspective." Inserting the sentence at square 1 would place the modification ("however, impulses . . . continue to exist") before the idea that it modifies (repression of impulses). This makes no logical sense. Inserting the sentence at square 3 would move the modifying sentence away from its logical position immediately following the idea that it modifies (repression of impulses). Placing the insert sentence at square 4 moves the sentence farther from its logical antecedent and has no connection to the sentence that follows it.

12.○2

○1, 6

○3, 5

侵略性行为

动物攻击异己时，会表现出非常明显的侵略性行为。心理学家们采用了数种方法来分析人类的侵略性行为。

生物学方法。侵略性行为似乎与许多生物结构和化学物质有关。如大脑中的下丘脑。很多动物在受到特定刺激时会表现出本能的侵略反应。下丘脑似乎与动物的这种本能反应有关：对许多动物的下丘脑中部分区域进行电激，会引发一些它们的常见侵略性行为。然而，人类的大脑要复杂的多，大脑的其他结构似乎可以抑制这种本性。

社会生物学是生物学方法的一个分支，该理论认为侵略性对于人类而言是天生并且必要的。社会生物学认为，包括侵略性行为在内的许多社会行为都是由遗传决定的。根据达尔文的进化论，他认为，个体存在的数量远远超过那些可以找到食物并且活到成年的个体数量，个体之间开始进行生存竞争，那些拥有竞争优势的个体更容易存活，并且会将它们有利于生存竞争的基因遗传给下一代。大部分物种所具有的竞争优势特质之一就是好斗性。拥有侵略性特质的个体更容易存活和繁殖，因此，与侵略性行为相关的各种基因遗传给下一代的可能性更大。

该理论在众多方面遭到质疑。其一，人类拥有其他物种不具备的能力，这种并非侵略性质的能力才是人类生存下来的主要原因。其二，人类身上存在太多的变数，因此，我们无法相信人类会被侵略性冲动主导或者支配。

精神动力学方法。理论家们依据精神动力学方法认为，内在矛盾是理解人类包括侵略性行为在内的所有行为的关键所在。比如，弗洛伊德认为，日常生活中的挫败感不可避免地导致人类产生侵略性冲动。孩子们时常想对包括他们父母在内的其他人发泄侵略性冲动的情感，因为即使是最周全的父母也无法做到立即满足孩子的所有要求。然而，孩子们又会因为害怕受到父母的处罚，担心失去父母的爱而压制了内心大部分的侵略性冲动。从某种意义上说，弗洛伊德的观点是将人类视为“蒸汽机”，通过内部压制而不是释放“蒸汽”，进而为今后的爆发埋下伏笔。积聚起来的侵略性冲动需要被释放出来。孩子们会间接对他们的父母发泄，比如毁坏家具，或在以后的生活中对陌生人发泄。

根据精神动力学理论可知，避免有害侵略的最好方法是提倡危害较小的侵略方式。用蒸汽机打个比方吧，言语性的侵略可以释放些许带有侵略性质的蒸汽。比如，你可以为自己最喜欢的体育团队呐喊助威。精神分析学家是利用精神动力学方法分析的理疗师，他们将侵略性冲动的发泄看成是“精神发泄”。理论证明精神发泄是一种安全的方式。但研究发现精神发泄的有用性和无用性很混乱。有的研究表明精神发泄可以缓解紧张情绪并且有助于降低以后侵略性行为产生的可能性。但其他研究又表明让释放部分的侵略性冲动蒸汽事实上会导致今后更多的侵略性行为的产生。

认知方法。认知心理学家们认为人类的行为受以下因素影响：价值观、解析自己处境的方式以及不同的选择。例如，那些认为侵略性行为是必要的，并且认为战争时期侵略行为是正义的人，他们的好斗性可能更高，而认为某些战争或侵略行为是不公平的，并且认为侵略永远是不正当的人，他们遇事时不大可能会采取侵略性行为。

另一认知理论认为，恼人的、痛苦的事件会引起人们的不悦。随即，这种不悦将导致但并非自动地导致侵略性行为，人们的认知因素会在其中起到干预作用。一个人是否采取出侵略性行动取决于以下因素，他们进行侵略性攻击的经历，对他人动机的解读等。研究表明带有侵略性的人经常曲解他人的意图。例如，他们认为别人想伤害自己，而事实并非如此。

Artisans and Industrialization

Before 1815 manufacturing in the United States had been done in homes or shops by skilled artisans. As master craft workers, they imparted the knowledge of their trades to apprentices and journeymen. In addition, women often worked in their homes part-time, making finished articles from raw material supplied by merchant capitalists. After 1815 this older form of manufacturing began to give way to factories with machinery tended by unskilled or semiskilled laborers. Cheap transportation networks, the rise of cities, and the availability of capital and credit all stimulated the shift to factory production.

The creation of a labor force that was accustomed to working in factories did not occur easily. Before the rise of the factory, artisans had worked within the home. Apprentices were considered part of the family, and masters were responsible not only for teaching their apprentices a trade but also for providing them some education and for supervising their moral behavior. Journeymen knew that if they perfected their skill, they could become respected master artisans with their own shops. Also, skilled artisans did not work by the clock, at a steady pace, but rather in bursts of intense labor alternating with more leisurely time.

The factory changed that. Goods produced by factories were not as finished or elegant as those done by hand, and pride in craftsmanship gave way to the pressure to increase rates of productivity. The new methods of doing business involved a new and stricter sense of time. Factory life necessitated a more regimented schedule, where work began at the sound of a bell and workers kept machines going at a constant pace. At the same time, workers were required to discard old habits, for industrialism demanded a worker who was alert, dependable, and self-disciplined. Absenteeism and lateness hurt productivity and, since work was specialized, disrupted the regular factory routine. Industrialization not only produced a fundamental change in the way work was organized; it transformed the very nature of work.

The first generation to experience these changes did not adopt the new attitudes easily. The factory clock became the symbol of the new work rules. One mill worker who finally quit complained revealingly about "obedience to the ding-dong of the bell-just as though we are so many living machines." With the loss of personal freedom also came the loss of standing in the community. Unlike artisan workshops in which apprentices worked closely with the masters supervising them, factories sharply separated workers from management. Few workers rose through the ranks to supervisory positions, and even fewer could achieve the artisan's dream of setting up one's own business. Even well-paid workers sensed their decline in status.

In this newly emerging economic order, workers sometimes organized to protect their rights and traditional ways of life. Craft workers such as carpenters, printers, and tailors formed unions, and in 1834 individual unions came together in the National Trades' Union. The labor movement gathered some momentum in the decade before the Panic of 1837, but in the depression that followed, labor's strength collapsed. During hard times, few workers were willing to *strike** or engage in collective action. And skilled craft workers, who spearheaded the union movement, did not feel a particularly strong bond with semiskilled factory workers and unskilled laborers. More than a decade of agitation did finally bring a workday shortened to 10 hours to most industries by the 1850's, and the courts also recognized workers' right to strike, but these gains had little immediate impact.

Workers were united in resenting the industrial system and their loss of status, but they were divided by ethnic and racial antagonisms, gender, conflicting religious perspectives, occupational differences, political party loyalties, and disagreements over tactics. For them, the factory and industrialism were not agents of opportunity but reminders of their loss of independence and a measure of control over their lives. As United States society

became more specialized and differentiated, greater extremes of wealth began to appear. And as the new markets created fortunes for the few, the factory system lowered the wages of workers by dividing labor into smaller, less skilled tasks.

Paragraph 1: Before 1815 manufacturing in the United States had been done in homes or shops by skilled artisans. As master craft workers, they imparted the knowledge of their trades to apprentices and journeymen. In addition, women often worked in their homes part-time, making finished articles from raw material supplied by merchant capitalists. After 1815 this older form of manufacturing began to give way to factories with machinery tended by unskilled or semiskilled laborers. Cheap transportation networks, the rise of cities, and the availability of capital and credit all stimulated the shift to factory production.

1. Which of the following can be inferred from the passage about articles manufactured before 1815?

- They were primarily produced by women.
- They were generally produced in shops rather than in homes.
- They were produced with more concern for quality than for speed of production.
- They were produced mostly in large cities with extensive transportation networks.

Paragraph 2: The creation of a labor force that was accustomed to working in factories did not occur easily. Before the rise of the factory, artisans had worked within the home. Apprentices were considered part of the family, and masters were responsible not only for teaching their apprentices a trade but also for providing them some education and for supervising their moral behavior. Journeymen knew that if they perfected their skill, they could become respected master artisans with their own shops. Also, skilled artisans did not work by the clock, at a steady pace, but rather in bursts of intense labor alternating with more leisurely time.

2. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect answer choices change the meaning in important ways or leave out essential information.

- Masters demanded moral behavior from apprentices but often treated them irresponsibly.
- The responsibilities of the master to the apprentice went beyond the teaching of a trade.
- Masters preferred to maintain the trade within the family by supervising and educating the younger family members.
- Masters who trained members of their own family as apprentices demanded excellence from them.

Paragraph 3: The factory changed that. Goods produced by factories were not as finished or elegant as those done by hand, and pride in craftsmanship gave way to the pressure to increase rates of productivity. The new methods of doing business involved a new and stricter sense of time. Factory life necessitated a more regimented schedule, where work began at the sound of a bell and workers kept machines going at a constant pace. At the same time, workers were required to discard old habits, for industrialism demanded a worker who was alert, dependable, and self-disciplined. Absenteeism and lateness hurt productivity and, since work was specialized, disrupted the regular factory routine. Industrialization not only produced a fundamental change in the way work was organized; it transformed the very nature of work.

3. The word “disrupted” in the passage is closest in meaning to

- prolonged
- established
- followed
- upset

Paragraph 4: The first generation to experience these changes did not adopt the new attitudes easily. The factory clock became the symbol of the new work rules. One mill worker who finally quit complained revealingly about "obedience to the ding-dong of the bell-just as though we are so many living machines." With the loss of personal freedom also came the loss of standing in the community. Unlike artisan workshops in which apprentices worked closely with the masters supervising them, factories sharply separated workers from management. Few workers rose through the ranks to supervisory positions, and even fewer could achieve the artisan's dream of setting up one's own business. Even well-paid workers sensed their decline in status.

4. In paragraph 4, the author includes the quotation from a mill worker in order to
- support the idea that it was difficult for workers to adjust to working in factories
 - to show that workers sometimes quit because of the loud noise made by factory machinery
 - argue that clocks did not have a useful function in factories
 - emphasize that factories were most successful when workers revealed their complaints

5. All of the following are mentioned in paragraph 4 as consequences of the new system for workers EXCEPT a loss of

- freedom
- status in the community
- opportunities for advancement
- contact among workers who were not managers

Paragraph 5: In this newly emerging economic order, workers sometimes organized to protect their rights and traditional ways of life. Craft workers such as carpenters, printers, and tailors formed unions, and in 1834 individual unions came together in the National Trades' Union. The labor movement gathered some momentum in the decade before the Panic of 1837, but in the depression that followed, labor's strength collapsed. During hard times, few workers were willing to *strike** or engage in collective action. And skilled craft workers, who spearheaded the union movement, did not feel a particularly strong bond with semiskilled factory workers and unskilled laborers. More than a decade of agitation did finally bring a workday shortened to 10 hours to most industries by the 1850's, and the courts also recognized workers' right to strike, but these gains had little immediate impact.

6. The phrase "gathered some momentum" in the passage is closest in meaning to

- made progress
- became active
- caused changes
- combined forces

7. The word "spearheaded" in the passage is closest in meaning to

- led
- accepted
- changed
- resisted

8. Which of the following statements about the labor movement of the 1800's is supported by paragraph 5?

- It was most successful during times of economic crisis.
- Its primary purpose was to benefit unskilled laborers.
- It was slow to improve conditions for workers.
- It helped workers of all skill levels form a strong bond with each other.

Paragraph 6: Workers were united in resenting the industrial system and their loss of status, but they were divided by ethnic and racial antagonisms, gender, conflicting religious perspectives, occupational differences, political party loyalties, and disagreements over tactics. For them, the factory and industrialism were not agents of opportunity but reminders of their loss of independence and a measure of control over their lives. As United States society became more specialized and differentiated, greater extremes of wealth began to appear. And as the new markets created fortunes for the few, the factory system lowered the wages of workers by dividing labor into smaller, less skilled tasks.

9. The author identifies political party loyalties, and disagreements over tactics as two of several factors that
- encouraged workers to demand higher wages
 - created divisions among workers
 - caused work to become more specialized
 - increased workers' resentment of the industrial system
10. The word "them" in the passage refers to
- workers
 - political party loyalties
 - disagreements over tactics
 - agents of opportunity

Paragraph 1: Before 1815 manufacturing in the United States had been done in homes or shops by skilled artisans. ■As master craft workers, they imparted the knowledge of their trades to apprentices and journeymen. ■In addition, women often worked in their homes part-time, making finished articles from raw material supplied by merchant capitalists. ■After 1815 this older form of manufacturing began to give way to factories with machinery tended by unskilled or semiskilled laborers. ■Cheap transportation networks, the rise of cities, and the availability of capital and credit all stimulated the shift to factory production.

11. Look at the four squares [■] that indicate where the following sentence can be added to the passage.
- This new form of manufacturing depended on the movement of goods to distant locations and a centralized source of laborers.**
- Where would the sentence best fit?

12. **Directions:** Complete the table below by indicating which of the answer choices describe characteristics of the period before 1815 and which describe characteristics of the 1815-1850 period. **This question is worth 3 points.**

Before 1815	1815-1850
<ul style="list-style-type: none">••	<ul style="list-style-type: none">•••

Answer choices

- A united, highly successful labor movement took shape.
- Workers took pride in their workmanship.
- The income gap between the rich and the poor increased greatly.

-
- Transportation networks began to decline.
 - Emphasis was placed on following schedules.
 - Workers went through an extensive period of training.
 - Few workers expected to own their own businesses.

参考答案:

1. ○3

This is an Inference question asking for an inference that can be supported by the passage. The correct answer is choice 3, "They were produced with more concern for quality than for speed of production." A number of statements throughout the passage support choice 3. Paragraph 1 states that "Before 1815 manufacturing in the United States had been done in homes or shops by skilled artisans . . . After 18 15 this older form of manufacturing began to give way to factories with machinery tended by unskilled or semiskilled laborers." Paragraph 2 states that "Before the rise of the factory . . . skilled artisans did not work by the clock, at a steady pace, but rather in bursts of intense labor alternating with more leisurely time." Paragraph 3 states, "The factory changed that. Goods produced by factories were not as finished or elegant as those done by hand, and pride in craftsmanship gave way to the pressure to increase rates of productivity."

Taken together, these three statements, about production rates, the rise of factories after 18 15, and the decline of craftsmanship after 18 15, support the inference that before 18 15, the emphasis had been on quality rather than on speed of production. Answer choices 1, 2, and 4 are all contradicted by the passage.

2. ○2

This is a Sentence Simplification question. As with all of these items, a single sentence in the passage is highlighted:

Apprentices were considered part of the family, and masters were responsible not only for teaching their apprentices a trade but also for providing them some education and for supervising their moral behavior.

The correct answer is choice 2. Choice 2 contains all of the *essential* information in the highlighted sentence. The highlighted sentence explains why (part of the family) and how (education, moral behavior) a master's responsibility went beyond teaching a trade. The essential information is the fact that the master's responsibility went beyond teaching a trade. Therefore, choice 2 contains all that is essential without changing the meaning of the highlighted sentence.

Choice 1 changes the meaning of the highlighted sentence by stating that masters often treated apprentices irresponsibly.

Choice 3 contradicts the essential meaning of the highlighted sentence. The fact that "Apprentices were considered part of the family . . ." suggests that they were not actual family members.

Choice 4, like choice 3, changes the meaning of the highlighted sentence by discussing family members as apprentices.

3. ○4

This is a Vocabulary question. The word being tested is *disrupted*. It is highlighted in the passage. The correct answer is choice 4, "upset." The word "upset" here is used in the context of "hurting productivity." When something is hurt or damaged, it is "upset."

4. ○1

This is a Factual Information question asking for specific information that can be found in paragraph 4. The correct answer is choice I, "support the idea that it was difficult for workers to adjust to working in factories." The paragraph begins by stating that workers did not adopt new attitudes toward work easily and that the clock symbolized the new work rules. The author provides the quotation as evidence of that difficulty. There is no indication in the paragraph that workers quit due to loud noise, so choice 2 is incorrect. Choice 3 (usefulness of clocks) is contradicted by the paragraph. The factory clock was "useful," but workers hated it. Choice 4 (workers complaints as a cause of a factory's success) is not discussed in this paragraph.

5. ○4

This is a Negative Factual Information question asking for specific information that can be found in paragraph 4. Choice 4, "contact among workers who were not managers," is the correct answer. The paragraph explicitly contradicts this by stating that "factories sharply separated workers from management." The paragraph explicitly states that workers lost choice 1 (freedom), choice 2 (status in the community), and choice 3 (opportunities for advancement) in the new system, so those choices are all incorrect.

6. ○1

This is a Vocabulary question. The phrase being tested is "gathered some momentum." It is highlighted in the passage. The correct answer is choice I, "made progress." To "gather momentum" means to advance with increasing speed.

7. ○1

This is a Vocabulary question. The word being tested is spearheaded. It is highlighted in the passage. The correct answer is choice 1, "led." The head of a spear leads the rest of the spear, so the crafts workers who "spearheaded" this movement led it.

8. ○3

This is a Factual Information question asking for specific information that can be found in paragraph 5. The correct answer is choice 3, "It was slow to improve conditions for workers." The paragraph states, "More than a decade of agitation did finally bring a workday shortened to 10 hours to most industries by the 1850's, and the courts also recognized workers' right to strike, but these gains had little immediate impact." This statement explicitly supports choice 3. All three other choices are contradicted by the paragraph.

9. ○2

This is a Factual Information question asking for specific information about a particular phrase in the passage. The phrase in question is highlighted in the passage. The correct answer is choice 2, "created divisions among workers." The paragraph states (emphasis added): ". . . they (workers) were divided by ethnic and racial antagonisms, gender; conflicting religious perspectives, occupational differences, political party loyalties, and disagreements over tactics." So "political party loyalties and disagreements over tactics" are explicitly stated as two causes of division among workers. The other choices are not stated and are incorrect.

10. ○1

This is a Reference question. The word being tested is them. It is highlighted in the passage. This is a simple pronoun-referent item. The word them in this sentence refers to those people to whom "the factory and industrialism were not agents of opportunity but reminders of their loss of independence and a measure of control over their lives." Choice 1, "Workers," is the only choice that refers to this type of person, so it is the correct answer.

11. ○4

This is an Insert Text question. You can see the four black squares in paragraph 1 that represent the possible answer choices here.

Before 1815 manufacturing in the United States had been done in homes or shops by skilled artisans. ■ As master craft workers, they imparted the knowledge of their trades to apprentices and journeymen. ■ In addition, women often worked in their homes part-time, making finished articles from raw material supplied by merchant capitalists. W After 1815 this older form of manufacturing began to give way to factories with machinery tended by unskilled or semiskilled laborers. ■ Cheap transportation networks, the rise of cities, and the availability of capital and credit all stimulated the shift to factory production.

The sentence provided, "**This new form of manufacturing depended on the movement of goods to distant locations and a centralized source of laborers,**" is best inserted at square 4. The inserted sentence refers explicitly to "a new form of manufacturing." This "new form of manufacturing" is the one mentioned in the sentence preceding square 4, "factories with machinery tended by unskilled or semiskilled laborers." The inserted sentence then explains that this new system depended on "the movement of goods to distant locations and a centralized source of laborers." The sentence that follows square 4 goes on to say, "Cheap transportation networks, the rise of cities, and the availability of capital and credit all stimulated the shift to factory production." Thus the inserted sentence contains references to both the sentence before square 4 and the sentence after square 4. This is not true of any of the other possible insert points, so square 4 is the correct answer.

12. ○ Before 1815: 2, 6

○ 1815-1850: 3, 5, 7

This is a Fill in a Table question. It is completed correctly below. The correct choices for the "Before 18 15" column are 2 and 6. Choices 3, 5, and 7 belong in the "1815-1 850" column. Choices 1 and 4 should not be used in either column.

工匠和工业化

1815 年以前，美国的制造业仅限于技术高超的工匠在自己家中和作坊中进行生产。作为师傅，工匠们将自己的手艺传授给徒弟和雇工。此外，妇女们在家中通常也会兼职从事一些生产活动，将商业资本家提供的原料制成成品。1815 年以后，这种古老的生产模式逐渐消失，雇佣没有技术或半技术劳动者的机械化工厂开始兴起。廉价的交通运输网络、城市的兴起和资本借贷的可行性都促进了制造业从手工作坊到工厂生产的转变。

想要获得适应在工厂工作中劳动力并不容易。在工厂兴起之前，工匠们只是呆家里进行生产，学徒们被视为家庭的一份子，师傅不光负责传授他们手艺，还要教育并监督他们的道德行为。雇工也明白如果他们的技艺足够精湛，就会成为受人尊敬的工匠师傅并拥有自己的作坊。同时，老练的工匠师傅们并不会按照时间计划安排生产，他们更习惯于时而闲暇，时而为了交单连夜赶工的生产方式。

工厂化生产改变了这一切。工厂生产的商品没有手工制作的那么完美和精致，工厂要求工人们提高生产效率，导致工人们对自身技艺的自豪感逐渐弱化。工厂化生产方式要求工人们加强之前没有的时间观念，要求他们严格遵守工作时间的安排，铃声响起，工人们开始操控机器稳速运转。工人们在适应新的生产方式的同时，还要摒弃旧习惯。产业主义要求工人们具备机敏、可靠和自律的素质。既然工厂生产已经专业化，旷工与迟到就会降低劳动生产率，也会影响工厂的正常运转。工业化进程不仅促成了一种工作组织形式的根本改变，而且改变了工作的本质。

适应新的生产方式对第一代经历产业革命的工人来说是一件非常困难的事情。工厂的时钟变成了新工作规定的象征。一名最终辞职的磨坊工人袒露真情地抱怨道：“让我们听从于叮叮当当的钟表，简直就把我们当成了活生生的机器。”工人们不仅丧失了人身自由，他们的社会地位也开始下降。和手工作坊里徒弟与监督他们的师傅之间的密切工作关系不同，工厂将工人阶层与管理层明显地区分开。很少有工人能够僭越等级被提升到管理层的岗位，甚至基本没有人能够实现身为工匠时的梦想：经营自己的生意。那些待遇优厚的工人也开始感到他们的社会地位在下降。

在这种新的经济秩序中，有时工人们会组织起来共同去保护他们的权利和传统的生活方式。比如木匠、印刷工人和裁缝等技术工人成立了联盟，并且，在 1834 年，各个独立的联盟组织成立了国家职工联盟。在 1837 年大恐慌前之的十年中，工人运动取得了进步，不过随后而来的经济大萧条最终导致了工人力量的瓦解。那段时间，很少有人愿意罢工或者参与工人运动。身为工人运动先锋队的技术工匠们，并没有感到他们与半技术工人和非技术劳动者之间有显著密切的联系。直到 19 世纪 50 年代，超过十年的抗争最终使得大多数行业的工作时间缩短至 10 小时，法院也承认了工人罢工的权利，但这些权利的影响并没有立即显现。

因为对工业体系和他们社会地位丧失的不满，工人们开始联合起来，但他们内部又被另外的因素分裂：民族和种族的敌对、性别差异、宗教信仰的冲突、职位差别、对不同政党的忠诚和工作策略的分歧等。对于工人们来说，工厂和工业化不代表着机遇，却时刻提醒着他们自身的丧失，并成为一种控制他们生活的手段。随着美国社会生产变得更加专业化和差异化，更大规模的极端财富开始出现。并且由于新兴市场只给少数人创造财富，工业体系不得不通过将劳动分割成更小的、技术含量更低的工作来降低工人们的工资。

Swimming Machines

Tunas, mackerels, and billfishes (marlins, sailfishes, and swordfish) swim continuously. Feeding, courtship, reproduction, and even "rest" are carried out while in constant motion. As a result, practically every aspect of the body form and function of these swimming "machines" is adapted to enhance their ability to swim.

Many of the adaptations of these fishes serve to reduce water resistance (drag). Interestingly enough, several of these hydrodynamic adaptations resemble features designed to improve the aerodynamics of high-speed aircraft. Though human engineers are new to the game, tunas and their relatives evolved their "high-tech" designs long ago.

Tunas, mackerels, and billfishes have made streamlining into an art form. Their bodies are sleek and compact. The body shapes of tunas, in fact, are nearly ideal from an engineering point of view. Most species lack scales over most of the body, making it smooth and slippery. The eyes lie flush with the body and do not protrude at all. They are also covered with a slick, transparent lid that reduces drag. The fins are stiff, smooth, and narrow, qualities that also help cut drag. When not in use, the fins are tucked into special grooves or depressions so that they lie flush with the body and do not break up its smooth contours. Airplanes retract their landing gear while in flight for the same reason.

Tunas, mackerels, and billfishes have even more sophisticated adaptations than these to improve their hydrodynamics. The long bill of marlins, sailfishes, and swordfish probably helps them slip through the water. Many supersonic aircraft have a similar needle at the nose.

Most tunas and billfishes have a series of keels and finlets near the tail. Although most of their scales have been lost, tunas and mackerels retain a patch of coarse scales near the head called the corselet. The keels, finlets, and corselet help direct the flow of water over the body surface in such a way as to reduce resistance (see the figure). Again, supersonic jets have similar features.

Because they are always swimming, tunas simply have to open their mouths and water is forced in and over their gills. Accordingly, they have lost most of the muscles that other fishes use to suck in water and push it past the gills. In fact, tunas must swim to breathe. They must also keep swimming to keep from sinking, since most have largely or completely lost the swim bladder, the gas-filled sac that helps most other fish remain buoyant.

One potential problem is that opening the mouth to breathe detracts from the streamlining of these fishes and tends to slow them down. Some species of tuna have specialized grooves in their tongue. It is thought that these grooves help to channel water through the mouth and out the gill slits, thereby reducing water resistance.

There are adaptations that increase the amount of forward thrust as well as those that reduce drag. Again, these fishes are the envy of engineers. Their high, narrow tails with swept-back tips are almost perfectly adapted to provide propulsion with the least possible effort. Perhaps most important of all to these and other fast swimmers is their ability to sense and make use of swirls and eddies (circular currents) in the water. They can glide past eddies that would slow them down and then gain extra thrust by "pushing off" the eddies. Scientists and engineers are beginning to study this ability of fishes in the hope of designing more efficient propulsion systems for ships.

The muscles of these fishes and the mechanism that maintains a warm body temperature are also highly

efficient. A bluefin tuna in water of 7°C (45°F) can maintain a core temperature of over 25°C (77°F). This warm body temperature may help not only the muscles to work better, but also the brain and the eyes. The billfishes have gone one step further. They have evolved special "heaters" of modified muscle tissue that warm the eyes and brain, maintaining peak performance of these critical organs.

Paragraph 1: Tunas, mackerels, and billfishes (marlins, sailfishes, and swordfish) swim continuously. Feeding, courtship, reproduction, and even "rest" are carried out while in constant motion. As a result, practically every aspect of the body form and function of these swimming "machines" is adapted to enhance their ability to swim.

1. The word "enhance" in the passage is closest in meaning to

- use
- improve
- counteract
- balance

Paragraph 3: Tunas, mackerels, and billfishes have made streamlining into an art form. Their bodies are sleek and compact. The body shapes of tunas, in fact, are nearly ideal from an engineering point of view. Most species lack scales over most of the body, making it smooth and slippery. The eyes lie flush with the body and do not protrude at all. They are also covered with a slick, transparent lid that reduces drag. The fins are stiff, smooth, and narrow, qualities that also help cut drag. When not in use, the fins are tucked into special grooves or depressions so that they lie flush with the body and do not break up its smooth contours. Airplanes retract their landing gear while in flight for the same reason.

2. The word "they" in the passage refers to

- qualities
- fins
- grooves
- depressions

3. Why does the author mention that Airplanes retract their landing gear while in flight?

- To show that air resistance and water resistance work differently from each other
- To argue that some fishes are better designed than airplanes are
- To provide evidence that airplane engine have studied the design of fish bodies
- To demonstrate a similarity in design between certain fishes and airplanes

Paragraph 4: Tunas, mackerels, and billfishes have even more sophisticated adaptations than these to improve their hydrodynamics. The long bill of marlins, sailfishes, and swordfish probably helps them slip through the water. Many supersonic aircraft have a similar needle at the nose.

4. The word "sophisticated" in the passage is closest in meaning to

- complex
- amazing
- creative
- practical

5. According to paragraph 4, the long bills of marlins, sailfish, and swordfish probably help these fishes by

-
- increasing their ability to defend themselves
 - allowing them to change direction easily
 - increasing their ability to detect odors
 - reducing water resistance as they swim

Paragraph 6: Because they are always swimming, tunas simply have to open their mouths and water is forced in and over their gills. Accordingly, they have lost most of the muscles that other fishes use to suck in water and push it past the gills. In fact, tunas must swim to breathe. They must also keep swimming to keep from sinking, since most have largely or completely lost the swim bladder, the gas-filled sac that helps most other fish remain buoyant.

6. According to the passage, which of the following is one of the reasons that tunas are in constant motion?

- They lack a swim bladder.
- They need to suck in more water than other fishes do.
- They have large muscles for breathing.
- They cannot open their mouths unless they are in motion.

Paragraph 7: One potential problem is that opening the mouth to breathe detracts from the streamlining of these fishes and tends to slow them down. Some species of tuna have specialized grooves in their tongue. It is thought that these grooves help to channel water through the mouth and out the gill slits, thereby reducing water resistance.

7. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect answer choices change the meaning in important ways or leave out essential information.

- These fishes often have a problem opening their mouths while swimming.
- The streamlining of these fishes prevents them from slowing down.
- The streamlining of these fishes tends to slow down their breathing.
- Opening the mouth to breathe can reduce the speed of these fishes.

8. The word "channel" in the passage is closest in meaning to

- reduce
- remove
- direct
- provide

Paragraph 8: There are adaptations that increase the amount of forward thrust as well as those that reduce drag. Again, these fishes are the envy of engineers. Their high, narrow tails with swept-back tips are almost perfectly adapted to provide propulsion with the least possible effort. Perhaps most important of all to these and other fast swimmers is their ability to sense and make use of swirls and eddies (circular currents) in the water. They can glide past eddies that would slow them down and then gain extra thrust by "pushing off" the eddies. Scientists and engineers are beginning to study this ability of fishes in the hope of designing more efficient propulsion systems for ships.

9. According to the passage, one of the adaptations of fast-swimming fishes that might be used to improve the performance of ships is these fishes' ability to

- swim directly through eddies
- make efficient use of water currents
- cover great distances without stopping

-
- gain speed by forcing water past their gills

Paragraph 9: The muscles of these fishes and the mechanism that maintains a warm body temperature are also highly efficient. A bluefin tuna in water of 7°C (45°F) can maintain a core temperature of over 25°C (77°F). This warm body temperature may help not only the muscles to work better, but also the brain and the eyes. The billfishes have gone one step further. They have evolved special "heaters" of modified muscle tissue that warm the eyes and brain, maintaining peak performance of these critical organs.

10. According to paragraph 9, which of the following is true of bluefin tunas?
- Their eyes and brain are more efficient than those of any other fish.
 - Their body temperature can change greatly depending on the water temperature.
 - They can swim in waters that are much colder than their own bodies.
 - They have special muscle tissue that warms their eyes and brain.

Paragraph 6: ■Because they are always swimming, tunas simply have to open their mouths and water is forced in and over their gills. ■Accordingly, they have lost most of the muscles that other fishes use to suck in water and push it past the gills. ■In fact, tunas must swim to breathe. ■They must also keep swimming to keep from sinking, since most have largely or completely lost the swim bladder, the gas-filled sac that helps most other fish remain buoyant.

11. Look at the four squares [■] that indicate where the following sentence can be added to the passage.

Consequently, tunas do not need to suck in water.

Where would the sentence best fit?

12. **Directions:** Complete the table below by indicating which features of fishes are associated in the passage with reducing water resistance and which are associated with increasing thrust. **This question is worth 3 points.**

REDUCING WATER RESISTANCE	INCREASING THRUST
<ul style="list-style-type: none">•••	<ul style="list-style-type: none">••

Features of Fishes

- The absence of scales from most of the body
- The ability to take advantage of eddies
- The ability to feed and reproduce while swimming
- Eyes that do not protrude
- Fins that are stiff, narrow, and smooth
- The habit of swimming with the mouth open
- A high, narrow tail with swept-back tips

参考答案:

1. ○ 2

This is a Vocabulary question. The word being tested is enhance. It is highlighted in the passage. The correct answer is choice 2, "improve." To enhance something means to "make it better." If something has been "improved," it has been made better.

2. ○ 2

This is a Reference question. The word being tested is they. It is highlighted in the passage. Choice 2, "fins," is the correct answer. This is a simple pronoun-referent item. The word they refers to something that lies flush with the body when not in use. This is true only of "fins."

3. ○ 4

This is a Rhetorical Purpose question. It asks why the author mentions that "Airplanes retract their landing gear while in flight." The phrase being tested is highlighted in the passage. The correct answer is choice 4, "To demonstrate a similarity in design between certain fishes and airplanes." The paragraph in which the highlighted phrase appears describes how certain fish use their fins. The highlighted phrase is used to provide a more familiar example (airplanes) of the principle involved to help the reader visualize how fins work. The paragraph does not discuss airplanes in any other context, so choices 2 and 3 are incorrect. Air and water resistance are not mentioned in this paragraph, so choice 1 is incorrect.

4. ○ 1

This is a Vocabulary question. The word being tested is sophisticated. It is highlighted in the passage. The correct answer is choice 1, "complex." If something is sophisticated, it is "not simple," so it must be "complex."

5. ○ 4

This is a Factual Information question asking for specific information that can be found in paragraph 4. The correct answer is choice 4, "reducing water resistance as they swim." The overall theme of the passage is how certain fish swim so efficiently. Paragraphs 1 and 2 make the general statement that "practically every aspect of the body form and function of these swimming 'machines' is adapted to enhance their ability to swim. Many of the adaptations of these fishes serve to reduce water resistance (drag)." Paragraph 4 explicitly states (emphasis added) that "Tunas, mackerels, and billfishes have even more sophisticated adaptations than these to improve their hydrodynamics. The long bill of marlins, sailfishes, and swordfish probably helps them slip through the water." This is a specific example of one adaptation that these fish have made to increase their swimming efficiency. None of the other choices is mentioned in the paragraph.

6. ○ 1

This is a Factual Information question asking for specific information that can be found in the passage. The correct answer is choice 1, "They lack a swim bladder." Paragraph 6 explicitly states ". . . tunas must swim to breathe. They must also keep swimming to keep from sinking, since most have largely or completely lost the swim bladder . . ." The other choices are not supported by the passage.

7. ○ 4

This is a Sentence Simplification question. As with all of these items, a single sentence in the passage is highlighted:

One potential problem is that opening the mouth to breathe detracts from the streamlining of these fishes and tends to slow them down.

The correct answer is choice 4. That choice contains all of the essential ideas in the highlighted sentence. It is also

the only choice that does not change the meaning of the sentence. It omits the fact that this is "a problem" and also "that it detracts from streamlining" because that information is not essential to the meaning.

Choice 1 says that these fish have trouble opening their mouths while swimming, which is not true. Choice 2, that streamlining prevents fish from slowing down, may be true, but it is not mentioned in this sentence. The fish are slowed down when they open their mouths, which reduces streamlining. Choice 3, that streamlining slows the fishes' breathing, is also not mentioned.

8. ○ 3

This is a Vocabulary question. The word being tested is channel. It is highlighted in the passage. The correct answer is choice 3, "direct." Channel here is used as a verb, meaning to "move" or "push."

9. ○ 2

This is a Factual Information question asking for specific information that can be found in the passage. The correct answer is choice 2, "make efficient use of water currents." Paragraph 8 explicitly states: "Perhaps most important of all to these and other fast swimmers is their ability to sense and make use of swirls and eddies (circular currents) in the water. They can glide past eddies that would slow them down and then gain extra thrust by "pushing off" the eddies. Scientists and engineers are beginning to study this ability of fishes in the hope of designing more efficient propulsion systems for ships." The other choices are not mentioned in connection with the performance of ships.

10. ○ 3

This is a Factual Information question asking for specific information that can be found in paragraph 9. The correct answer is choice 3, "They can swim in waters that are much colder than their own bodies." That paragraph says, "A bluefin tuna in water of 7°C (45°F) can maintain a core temperature of over 25°C (77°F)." So it is clear that choice C is correct. Choice 1 is not stated in the paragraph. Choice 2 is contradicted by the paragraph. Choice 4 is true of billfish, not bluefin tuna.

11. ○ 2

This is an Insert Text question. You can see the four black squares in paragraph 6 that represent the possible answer choices here. The last sentence of paragraph 5 is also reproduced below.

Again, supersonic jets have similar features. ■ Because they are always swimming, tunas simply have to open their mouths and water is forced in and over their gills. ■ Accordingly, they have lost most of the muscles that other fishes use to suck in water and push it past the gills. In fact, tunas must swim to breathe. ■ They must also keep swimming to keep from sinking, since most have largely or completely lost the swim bladder, the gas-filled sac that helps most other fish remain buoyant.

The sentence provided, "**Consequently, tunas do not need to suck in water,**" is best inserted at square 2. The sentence provides an explanation for the muscle loss described in the sentence that follows square 2 and is a result of the fact described in the preceding sentence, which says that because the fish are always swimming, they only have to open their mouths to suck in water. Thus if the provided sentence is inserted at square 2, it provides a logical bridge between cause and effect. The sentence makes no logical sense anywhere else.

12. ○ Reducing Water Resistance: 1, 4, 5

○ Increasing Thrust: 2, 7

This is a Fill in a Table question. It is completed correctly below. The correct choices for the "Reducing water resistance" column are 1, 4, and 5. Choices 2 and 7 belong in the "Increasing thrust" column. Choices 3 and 6 should not be used in either column.

游泳机器

金枪鱼，鲭鱼，和长嘴鱼（或者说成是枪鱼、旗鱼和箭鱼）的游动从不停止。它们的进食，求偶，繁殖，甚至“休息”都在不断的运动中进行。事实上，这些游泳“机器”身体结构的每个部位及其功能都有利于它们更好地游行。

为了减少在水中前行的阻力，这类鱼身上产生了很多适应性变化。非常有趣的是，人类为了降低空气阻力加快高速飞机运行速度所进行的设计和这些鱼的适应性变化非常相似。这种设计只是人类工程师的初步尝试，但金枪鱼和他们的同类们已经拥有这种“高科技”设计很久很久。

金枪鱼、鲭鱼和长嘴鱼的流线体型简直就是一件工艺品。他们的身体光滑而坚实。从工程师的角度来看，金枪鱼的体型近乎完美。很多鱼类的绝大多数皮肤上是没有鱼鳞的，特别光滑。它们的眼睛和身体处于同一平面，根本不会凸显出来。身体表面还覆盖着一层光滑透明的外衣，鱼鳍部分坚硬、平稳而狭窄，这些特征都有助于降低前行中的阻力。当鱼儿们不使用鱼鳍时，会将它们折回到特殊的沟槽或者凹陷的地方，与身体保持同一平面，以维持它们平滑的外形。飞机收回起落装置，和这是同样的道理。

和上述特征相比，金枪鱼、鲭鱼和长嘴鱼们拥有更加精明的手段来增加它们在水中的适应性，比如他们的大长嘴。很多超音速飞机的头部就有类似的针状设计。

大多数金枪鱼和长嘴鱼的尾巴附近会长有一串脊骨和小鳍。虽然它们身上大部分地方是无鳞的，但在头部附近还保留着一块较粗的鳞片，叫做（鱼的）胸甲。脊骨、小鳍和胸甲有助于水直接流经鱼体表面，降低阻力（见附图）。同样，超音速飞机的喷头也有类似的特征。

因为金枪鱼的游动从不停止，它们必须张着嘴使水流经它们的腮。而其他鱼类的嘴里都会有一块肌肉，用于吸水 and 从腮里排水，金枪鱼的这块肌肉已经退化。实际上，它们必须通过游泳来呼吸。大部分金枪鱼很大程度上已经丧失了其他鱼类用于保持漂浮状态的鱼鳔，或者说已经完全丧失，因此，它们必须保持持续游泳的状态。

一个可能存在的问题在于，金枪鱼张嘴呼吸破坏了它们的流线型体型，有可能会降低它们的游泳速度。为此有的金枪鱼会在舌头上长有特殊的凹槽，以便引导水流通过嘴巴从腮缝流出，从而减少了阻力。

和降低阻力一样，金枪鱼们在游泳动力的加强上也有产生适应性变化。人类工程师在他们面前不得不自叹不如。向后倾斜并且长而狭窄的尾部非常有利于它们用最省力的方式前行。对这些鱼儿以及其他的鱼类游泳健将们来说，要保持在水里快速前行，最重要的可能就是对漩涡和逆流感知及利用的能力。漩涡会降低它们的速度，但它们在流经漩涡时不仅可以轻而易举地滑过而且会通过“推动”漩涡获得额外的动力。科学家和工程师们正在研究鱼的这种能力，以期设计出更高效的轮船推进系统。

这些鱼类的肌肉组织和保温机制也非常高效。一只蓝鳍金枪鱼在 **7°C (45°F)** 的温度下可以保持 **25°C (77°F)** 以上的体温。温暖的体温可以使得肌肉、大脑和眼睛更好地运转。长嘴鱼更厉害。它们有专门改善肌肉组织的加热器，可以使眼睛和大脑保持一定温度，从而保证自己的重要的器官保持在最好的运行状态中。

Nineteenth-Century Politics in the United States

The development of the modern presidency in the United States began with Andrew Jackson who swept to power in 1829 at the head of the Democratic Party and served until 1837. During his administration, he immeasurably enlarged the power of the presidency. "The President is the direct representative of the American people," he lectured the Senate when it opposed him. "He was elected by the people, and is responsible to them." With this declaration, Jackson redefined the character of the presidential office and its relationship to the people.

During Jackson's second term, his opponents had gradually come together to form the Whig party. Whigs and Democrats held different attitudes toward the changes brought about by the market, banks, and commerce. The Democrats tended to view society as a continuing conflict between "the people"—farmers, planters, and workers—and a set of greedy aristocrats. This "paper money aristocracy" of bankers and investors manipulated the banking system for their own profit, Democrats claimed, and sapped the nation's virtue by encouraging speculation and the desire for sudden, unearned wealth. The Democrats wanted the rewards of the market without sacrificing the features of a simple agrarian republic. They wanted the wealth that the market offered without the competitive, changing society; the complex dealing; the dominance of urban centers; and the loss of independence that came with it.

Whigs, on the other hand, were more comfortable with the market. For them, commerce and economic development were agents of civilization. Nor did the Whigs envision any conflict in society between farmers and workers on the one hand and businesspeople and bankers on the other. Economic growth would benefit everyone by raising national income and expanding opportunity. The government's responsibility was to provide a well-regulated economy that guaranteed opportunity for citizens of ability.

Whigs and Democrats differed not only in their attitudes toward the market but also about how active the central government should be in people's lives. Despite Andrew Jackson's inclination to be a strong President, Democrats as a rule believed in limited government. Government's role in the economy was to promote competition by destroying monopolies' and special privileges. In keeping with this philosophy of limited government, Democrats also rejected the idea that moral beliefs were the proper sphere of government action. Religion and politics, they believed, should be kept clearly separate, and they generally opposed humanitarian legislation.

The Whigs, in contrast, viewed government power positively. They believed that it should be used to protect individual rights and public liberty, and that it had a special role where individual effort was ineffective. By regulating the economy and competition, the government could ensure equal opportunity. Indeed, for Whigs the concept of government promoting the general welfare went beyond the economy. In particular, Whigs in the northern sections of the United States also believed that government power should be used to foster the moral welfare of the country. They were much more likely to favor social-reform legislation and aid to education.

In some ways the social makeup of the two parties was similar. To be competitive in winning votes, Whigs and Democrats both had to have significant support among farmers, the largest group in society, and workers. Neither party could win an election by appealing exclusively to the rich or the poor. The Whigs, however, enjoyed disproportionate strength among the business and commercial classes. Whigs appealed to planters who needed credit to finance their cotton and rice trade in the world market, to farmers who were eager to sell their surpluses, and to workers who wished to improve themselves. Democrats attracted farmers isolated from the market or uncomfortable with it, workers alienated from the emerging industrial system, and rising entrepreneurs who

wanted to break monopolies and open the economy to newcomers like themselves. The Whigs were strongest in the towns, cities, and those rural areas that were fully integrated into the market economy, whereas Democrats dominated areas of semisubsistence farming that were more isolated and languishing economically.

Paragraph 1: The development of the modern presidency in the United States began with Andrew Jackson who swept to power in 1829 at the head of the Democratic Party and served until 1837. During his administration, he immeasurably enlarged the power of the presidency. "The President is the direct representative of the American people," he lectured the Senate when it opposed him. "He was elected by the people, and is responsible to them." With this declaration, Jackson redefined the character of the presidential office and its relationship to the people.

1. The word "immeasurably" in the passage is closest in meaning to
 - frequently
 - greatly
 - rapidly
 - reportedly
2. According to paragraph 1, the presidency of Andrew Jackson was especially significant for which of the following reasons?
 - The President granted a portion of his power to the Senate.
 - The President began to address the Senate on a regular basis.
 - It was the beginning of the modern presidency in the United States.
 - It was the first time that the Senate had been known to oppose the President.

Paragraph 2: During Jackson's second term, his opponents had gradually come together to form the Whig party. Whigs and Democrats held different attitudes toward the changes brought about by the market, banks, and commerce. The Democrats tended to view society as a continuing conflict between "the people"—farmers, planters, and workers—and a set of greedy aristocrats. This "paper money aristocracy" of bankers and investors manipulated the banking system for their own profit, Democrats claimed, and sapped the nation's virtue by encouraging speculation and the desire for sudden, unearned wealth. The Democrats wanted the rewards of the market without sacrificing the features of a simple agrarian republic. They wanted the wealth that the market offered without the competitive, changing society; the complex dealing; the dominance of urban centers; and the loss of independence that came with it.

3. The author mentions bankers and investors in the passage as an example of which of the following?
 - The Democratic Party's main source of support
 - The people that Democrats claimed were unfairly becoming rich
 - The people most interested in a return to a simple agrarian republic
 - One of the groups in favor of Andrew Jackson's presidency

Paragraph 3: Whigs, on the other hand, were more comfortable with the market. For them, commerce and economic development were agents of civilization. Nor did the Whigs envision any conflict in society between farmers and workers on the one hand and businesspeople and bankers on the other. Economic growth would benefit everyone by raising national income and expanding opportunity. The government's responsibility was to provide a well-regulated economy that guaranteed opportunity for citizens of ability.

4. According to paragraph 3, Whigs believed that commerce and economic development would have which of

the following effects on society?

- They would promote the advancement of society as a whole.
- They would cause disagreements between Whigs and Democrats.
- They would supply new positions for Whig Party members.
- They would prevent conflict between farmers and workers.

5. According to paragraph 3, which of the following describes the Whig Party's view of the role of government?

- To regulate the continuing conflict between farmers and businesspeople
- To restrict the changes brought about by the market
- To maintain an economy that allowed all capable citizens to benefit
- To reduce the emphasis on economic development

Paragraph 4: Whigs and Democrats differed not only in their attitudes toward the market but also about how active the central government should be in people's lives. Despite Andrew Jackson's inclination to be a strong President, Democrats as a rule believed in limited government. Government's role in the economy was to promote competition by destroying monopolies' and special privileges. In keeping with this philosophy of limited government, Democrats also rejected the idea that moral beliefs were the proper sphere of government action. Religion and politics, they believed, should be kept clearly separate, and they generally opposed humanitarian legislation.

6. The word "inclination" in the passage is closest in meaning to

- argument
- tendency
- example
- warning

7. According to paragraph 4, a Democrat would be most likely to support government action in which of the following areas?

- Creating a state religion
- Supporting humanitarian legislation
- Destroying monopolies
- Recommending particular moral beliefs

Paragraph 5: The Whigs, in contrast, viewed government power positively. They believed that it should be used to protect individual rights and public liberty, and that it had a special role where individual effort was ineffective. By regulating the economy and competition, the government could ensure equal opportunity. Indeed, for Whigs the concept of government promoting the general welfare went beyond the economy. In particular, Whigs in the northern sections of the United States also believed that government power should be used to foster the moral welfare of the country. They were much more likely to favor social-reform legislation and aid to education.

8. The word "concept" in the passage is closest in meaning to

- power
- reality
- difficulty
- idea

9. Which of the following can be inferred from paragraph 5 about variations in political beliefs within the Whig Party?

- They were focused on issues of public liberty.
- They caused some members to leave the Whig party.
- They were unimportant to most Whigs.
- They reflected regional interests.

Paragraph 6: In some ways the social makeup of the two parties was similar. To be competitive in winning votes, Whigs and Democrats both had to have significant support among farmers, the largest group in society, and workers. Neither party could win an election by appealing exclusively to the rich or the poor. The Whigs, however, enjoyed disproportionate strength among the business and commercial classes. Whigs appealed to planters who needed credit to finance their cotton and rice trade in the world market, to farmers who were eager to sell their surpluses, and to workers who wished to improve themselves. Democrats attracted farmers isolated from the market or uncomfortable with it, workers alienated from the emerging industrial system, and rising entrepreneurs who wanted to break monopolies and open the economy to newcomers like themselves. The Whigs were strongest in the towns, cities, and those rural areas that were fully integrated into the market economy, whereas Democrats dominated areas of semisubsistence farming that were more isolated and languishing economically.

10. According to paragraph 6, the Democrats were supported by all of the following groups EXCEPT

- workers unhappy with the new industrial system
- planters involved in international trade
- rising entrepreneurs
- individuals seeking to open the economy to newcomers

11. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Whigs were able to attract support only in the wealthiest parts of the economy because Democrats dominated in other areas.
- Whig and Democratic areas of influence were naturally split between urban and rural areas, respectively.
- The semisubsistence farming areas dominated by Democrats became increasingly isolated by the Whigs' control of the market economy.
- The Democrats' power was greatest in poorer areas while the Whigs were strongest in those areas where the market was already fully operating.

Paragraph 2: During Jackson's second term, his opponents had gradually come together to form the Whig party. ■ Whigs and Democrats held different attitudes toward the changes brought about by the market, banks, and commerce. ■ The Democrats tended to view society as a continuing conflict between "the people"—farmers, planters, and workers—and a set of greedy aristocrats. ■ This "paper money aristocracy" of bankers and investors manipulated the banking system for their own profit, Democrats claimed, and sapped the nation's virtue by encouraging speculation and the desire for sudden, unearned wealth. ■ The Democrats wanted the rewards of the market without sacrificing the features of a simple agrarian republic. They wanted the wealth that the market offered without the competitive, changing society; the complex dealing; the dominance of urban centers; and the loss of independence that came with it.

12. Look at the four squares II that indicate where the following sentence can be added to the passage.

This new party argued against the policies of Jackson and his party in a number of important areas, beginning with the economy.

Where would the sentence best fit?

13. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some answer choices do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

The political system of the United States in the mid-nineteenth century was strongly influenced by the social and economic circumstances of the time.

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-

Answer Choices

- The Democratic and Whig Parties developed in response to the needs of competing economic and political constituencies.
- During Andrew Jackson's two terms as President, he served as leader of both the Democratic and Whig Parties.
- The Democratic Party primarily represented the interests of the market, banks, and commerce.
- In contrast to the Democrats, the Whigs favored government aid for education.
- A fundamental difference between Whigs and Democrats involved the importance of the market in society.
- The role of government in the lives of the people was an important political distinction between the two parties.

参考答案:

1. ○2

This is a Vocabulary question. The word being tested is *immeasurably*. It is highlighted in the passage. *Immeasurably* means "in a manner too big to be measured." So if Jackson enlarged the president's powers so much that the results can't be measured, he enlarged them "greatly."

2. ○3

This is a Factual Information question asking for specific information that can be found in paragraph 1. The correct answer is choice 3 because the first sentence of the paragraph explicitly states that this was when the development of the modern presidency began. The remainder of the paragraph is devoted to explaining the significant changes in government that this development involved. The result, as stated in sentence 5, was that the nature of the presidency itself was redefined. Choice 1 is contradicted by the paragraph; Jackson didn't give presidential power away, he increased it. Choice 2 is not mentioned in the paragraph: it says Jackson addressed the Senate, but not that this was the beginning of regular addresses. Choice 4, which says that this was the first time the Senate opposed the President, is not stated in the passage.

3. ○2

This is a Rhetorical Purpose question. It is asking you why the author mentions "bankers and investors" in the passage. The phrase being tested is highlighted in the passage. The correct answer is choice 2. The author is using bankers and investors as examples of people that the Democrats claimed were "manipulating" the banking system for their own profit. That means that they were unfairly becoming rich. Choices 1, 3, and 4 are all incorrect because, based upon the passage, they seem unlikely to be true. Therefore, the author would not use them as examples.

4. ○1

This is a Factual Information question asking for specific information that can be found in paragraph 3. Choice 1 is the correct answer. The paragraph says that Whigs believed commerce and economic development "would benefit everyone." That means essentially the same thing as choice 1, which says that Whigs believed economic growth would "promote the advancement of society as a whole." "Society as a whole" is another way of saying "everyone." Choices 2 and 3 are not mentioned in the paragraph. Choice 4, about conflict between groups, is mentioned but in a different context, so it is not a belief held by Whigs.

5. ○3

This is a Factual Information question asking for specific information that can be found in paragraph 3. The correct answer is choice 3: the Whigs viewed government as responsible for maintaining an economy that allowed all capable citizens to benefit. This is a restatement of paragraph 3, sentence 5. The paragraph states that Whigs did not envision continuing conflict between farmers and business people, so choice 1 is wrong. Whigs favored changes brought about by the market, so choice 2 is wrong. Whigs were in favor of increased emphasis on economic development, so choice 4 is incorrect.

6. ○2

This is a Vocabulary question. The word being tested is *inclination*. It is highlighted in the passage. The fact that Jackson had an inclination to be a strong President means that he preferred being strong to having limited powers. In other words, his "tendency" was to favor a strong presidency, so choice 2 is the correct answer.

7. ○3

This is a Factual Information question asking for specific information that can be found in paragraph 4. The correct answer is choice 3, which is explicitly stated in sentence 3 of the paragraph. Sentences 4 and 5 explicitly refute the other choices.

8. ○ 4

This is a Vocabulary question. The word being tested is concept. It is highlighted in the passage. The passage says that "for Whigs the concept of government was . . ." In other words, "the way Whigs thought about government was." That process of thinking represents ideas, so choice 4 is the correct answer here.

9. ○ 4

This is an Inference question asking for an inference that can be supported by paragraph 5. The correct answer is choice 4: variations in Whigs' political beliefs reflected regional differences. This is supported by sentence 5 of the paragraph which says that certain beliefs "particularly" reflected the views of northern Whigs. That suggests that Whigs in other regions of the country had beliefs that varied from this view and implies that such differences were regional. The other three choices are not mentioned in the passage in connection with "variations" in Whig beliefs, so there is no basis for inferring any of them.

10. ○ 2

This is a Negative Factual Information question asking for specific information that can be found in paragraph 6. Choice 2 is the correct answer. Sentence 5 says that it was Whigs, not Democrats, who had the support of planters involved in international trade. The next sentence, sentence 6, says that in contrast, Democrats had the support of the groups mentioned in choices 1, 3, and 4 ("workers," "entrepreneurs," and certain other "individuals"). Therefore, all of the groups described in the answer choices, EXCEPT the planters of choice 2, did support the Democrats.

11. ○ 4

This is a Sentence Simplification question. As with all of these items, a single sentence in the passage is highlighted:

The Whigs were strongest in the towns, cities, and those rural areas that were fully integrated into the market economy, whereas Democrats dominated areas of semisubsistence farming that were more isolated and languishing economically. The correct answer is choice 4. Choice "contains all of the essential information in the tested sentence but the order in which it is presented is reversed. The highlighted sentence describes areas of Whig strength first, and then the areas where Democrats were strong. The correct answer, choice 4, describes Democrat strongholds first, and then Whig areas. No meaning has been changed, and no information has been left out. Choice 1 is incorrect because it states that Whigs were able to attract support only in the wealthiest areas. The highlighted sentence does not say that; it says their support came from places integrated into the market, which can include areas of all economic levels.

Choice 2 is incorrect because it says that the two parties were split between rural and urban areas. However, the highlighted sentence says that Whigs were strong in rural areas that were integrated into the market economy. In other words, the split between the parties was based on the degree to which an area was integrated into the market, not whether it was urban or rural. Choice 3 is incorrect because the highlighted sentence makes no mention of how (or if) the Whigs' control of the market economy affected the areas dominated by the Democrats.

12. ○ 1

This is an Insert Text question. You can see the four black squares in paragraph 2 that represent the possible answer choices here.

During Jackson's second term, his opponents had gradually come together to form the Whig party. ■ Whigs and Democrats held different attitudes toward the changes brought about by the market, banks, and commerce. ■ The Democrats tended to view society as a continuing conflict between "the people "farmers, planters, and workers-and a set of greedy aristocrats. ■ This "paper money aristocracy" of bankers and investors manipulated the banking system for their own profit, Democrats claimed, and sapped the nation's virtue by encouraging

speculation and the desire for sudden, unearned wealth. ■ The Democrats wanted the rewards of the market without sacrificing the features of a simple agrarian republic. They wanted the wealth that the market offered without the competitive, changing society; the complex dealing; the dominance of urban centers; and the loss of independence that came with it.

The sentence provided, "**This new party argued against the policies of Jackson and his party in a number of important areas, beginning with the economy,**" is best inserted at square 1. Square 1 is correct because the phrase "This new party" refers directly and only to the Whigs, who are first mentioned (as a recently formed party) in sentence 1 of this paragraph. Square 2 is incorrect because the sentence before is not limited to the new Whig party. It discusses both Whigs and Democrats. Squares 3 and 4 are both incorrect because the sentences preceding them refer to the Democrats (the old party), not the Whigs.

13. ☐ 1, 5, 6

This is a Prose Summary question. It is completed correctly below. The correct choices are 1, 5, and 6. Choices 2, 3, and 4 are therefore incorrect.

十九世纪美国政治

美国现代总统制度的发展是从安德鲁杰克逊开始的。这位民主党领导人在 1829 年掌权，直至 1837 年卸任。在他任职期间，总统的权力被无限量地扩大了。参议院反对他时，他曾说：“总统是美国人民的直接代表，美国总统由公民选举产生，对公民负责。”杰克逊用这番话重新定义了内阁的角色，及其与民众的关系。

在杰克逊的第二任任职期间，他的反对者们逐渐联合起来形成了辉格党。辉格党和民主党在市场、银行、商业引发的变化上持有不同的态度。民主党倾向于把社会视作平民（农民、种植园主、工人）和一小撮贪婪的贵族间持续的斗争。他们宣称，那些银行家和投资者们都是“钞票贵族”，他们在自己利益的驱使下操纵着银行系统，并且以鼓励投机和迅速赚取不义之财的行为败坏国民道德。民主党人既想从市场经济中获得好处，又不想牺牲单一土地所有权的共和体制。他们想要市场经济带来的财富而不想要竞争，不想改变社会；不想要复杂的交易；不要大城市的主宰和随着市场经济而来的独立性的丧失。

另一方面，辉格党对市场更为适应。对于他们来说，商业和经济的发展是文明化的动力。然而，辉格党人并没有预见农民、工人和商人、银行家之间的冲突。他们认为，经济发展会通过增加国民收入和就业机会使每个人受益。政府的职责就是提供一个井然有序运作良好的经济环境，保证给每一个有能力的公民机会。

辉格党和民主党的分歧不仅表现在对市场的态度上，而且表现在中央政府究竟该在人民生活中起到多少作用上。抛开安德鲁杰克逊想做一个强势总统不谈，民主党本身就主张限制政府的做法。政府在经济中的角色就是通过摧毁垄断和特权来鼓励竞争。为了遵循限制政府的做法，民主党人同样否定了道德准则属政府行为的范畴。民主党人确信，宗教和政治应划清界限，而大体上，他们也反对人道主义立法。

相反地，政府权力在辉格党人眼中是积极的。他们认为，应该用政府权力保护个人权力和公众自由，在个人努力无效时扮演特殊角色。通过规划经济和竞争，政府可以保证机会平等。确实，辉格党的政府促进公众福利超过了促进经济。特别是，美国北部的辉格党还认为政府力量应该用来推广国家的道德福利。他们更加偏好社会改革法案和补助教育。

两个政党在社会结构、人员构成上具有某种程度的相似性。为了在投票中更具竞争力，辉格党和民主党都要在社会最大群体即农民和工人当中获得大力支持。任何一个党派若只讨好穷人或富人都不可能赢得选举。然而，辉格党偏好把精力花费在商业阶层上。辉格党博得了需要信用来贷款以在世界贸易中出售棉花和米的种地的人、渴望卖出余粮的农民和希望改变现状的工人的喜好。民主党则吸引了隔离于市场外或不习惯市场的农民、工业系统外的工人和想打破垄断开发新兴市场的新兴小企业家的欢心。辉格党在城镇市区还有完全融入市场经济的农村区域很强势，而民主党主宰了与市场隔绝，经济日渐衰微的半自给农耕地区。

The Expression of Emotions

Joy and sadness are experienced by people in all cultures around the world, but how can we tell when other people are happy or despondent? It turns out that the expression of many emotions may be universal. Smiling is apparently a universal sign of friendliness and approval. Baring the teeth in a hostile way, as noted by Charles Darwin in the nineteenth century, may be a universal sign of anger. As the originator of the theory of evolution, Darwin believed that the universal recognition of facial expressions would have survival value. For example, facial expressions could signal the approach of enemies (or friends) in the absence of language.

Most investigators concur that certain facial expressions suggest the same emotions in all people. Moreover, people in diverse cultures recognize the emotions manifested by the facial expressions. In classic research Paul Ekman took photographs of people exhibiting the emotions of anger, disgust, fear, happiness, and sadness. He then asked people around the world to indicate what emotions were being depicted in them. Those queried ranged from European college students to members of the Fore, a tribe that dwells in the New Guinea highlands. All groups, including the Fore, who had almost no contact with Western culture, agreed on the portrayed emotions. The Fore also displayed familiar facial expressions when asked how they would respond if they were the characters in stories that called for basic emotional responses. Ekman and his colleagues more recently obtained similar results in a study of ten cultures in which participants were permitted to report that multiple emotions were shown by facial expressions. The participants generally agreed on which two emotions were being shown and which emotion was more intense.

Psychological researchers generally recognize that facial expressions reflect emotional states. In fact, various emotional states give rise to certain patterns of electrical activity in the facial muscles and in the brain. The facial-feedback hypothesis argues, however, that the causal relationship between emotions and facial expressions can also work in the opposite direction. According to this hypothesis, signals from the facial muscles ("feedback") are sent back to emotion centers of the brain, and so a person's facial expression can influence that person's emotional state. Consider Darwin's words: "The free expression by outward signs of an emotion intensifies it. On the other hand, the repression, as far as possible, of all outward signs softens our emotions." Can smiling give rise to feelings of good will, for example, and frowning to anger?

Psychological research has given rise to some interesting findings concerning the facial-feedback hypothesis. Causing participants in experiments to smile, for example, leads them to report more positive feelings and to rate cartoons (humorous drawings of people or situations) as being more humorous. When they are caused to frown, they rate cartoons as being more aggressive.

What are the possible links between facial expressions and emotion? One link is arousal, which is the level of activity or preparedness for activity in an organism. Intense contraction of facial muscles, such as those used in signifying fear, heightens arousal. Self-perception of heightened arousal then leads to heightened emotional activity. Other links may involve changes in brain temperature and the release of neurotransmitters (substances that transmit nerve impulses.) The contraction of facial muscles both influences the internal emotional state and reflects it. Ekman has found that the so-called Duchenne smile, which is characterized by "crow's feet" wrinkles around the eyes and a subtle drop in the eye cover fold so that the skin above the eye moves down slightly toward the eyeball, can lead to pleasant feelings.

Ekman's observation may be relevant to the British expression "keep a stiff upper lip" as a recommendation for handling stress. It might be that a "stiff" lip suppresses emotional response—as long as the lip is not quivering with fear or tension. But when the emotion that leads to stiffening the lip is more intense, and involves strong

muscle tension, facial feedback may heighten emotional response.

Paragraph 1: Joy and sadness are experienced by people in all cultures around the world, but how can we tell when other people are happy or despondent? It turns out that the expression of many emotions may be universal. Smiling is apparently a universal sign of friendliness and approval. Baring the teeth in a hostile way, as noted by Charles Darwin in the nineteenth century, may be a universal sign of anger. As the originator of the theory of evolution, Darwin believed that the universal recognition of facial expressions would have survival value. For example, facial expressions could signal the approach of enemies (or friends) in the absence of language.

1. The word "despondent" in the passage is closest in meaning to
 - curious
 - unhappy
 - thoughtful
 - uncertain
2. The author mentions "Baring the teeth in a hostile way" in order to
 - differentiate one possible meaning of a particular facial expression from other meanings of it
 - support Darwin's theory of evolution
 - provide an example of a facial expression whose meaning is widely understood
 - contrast a facial expression that is easily understood with other facial expressions

Paragraph 2: Most investigators concur that certain facial expressions suggest the same emotions in all people. Moreover, people in diverse cultures recognize the emotions manifested by the facial expressions. In classic research Paul Ekman took photographs of people exhibiting the emotions of anger, disgust, fear, happiness, and sadness. He then asked people around the world to indicate what emotions were being depicted in them. Those queried ranged from European college students to members of the Fore, a tribe that dwells in the New Guinea highlands. All groups, including the Fore, who had almost no contact with Western culture, agreed on the portrayed emotions. The Fore also displayed familiar facial expressions when asked how they would respond if they were the characters in stories that called for basic emotional responses. Ekman and his colleagues more recently obtained similar results in a study of ten cultures in which participants were permitted to report that multiple emotions were shown by facial expressions. The participants generally agreed on which two emotions were being shown and which emotion was more intense.

3. The word "concur" in the passage is closest in meaning to
 - estimate
 - agree
 - expect
 - understand
4. The word "them" in the passage refers to
 - emotions
 - people
 - photographs
 - cultures
5. According to paragraph 2, which of the following was true of the Fore people of New Guinea?
 - They did not want to be shown photographs.

-
- They were famous for their story-telling skills.
 - They knew very little about Western culture.
 - They did not encourage the expression of emotions.

6. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- The Fore's facial expressions indicated their unwillingness to pretend to be story characters.
- The Fore were asked to display familiar facial expressions when they told their stories.
- The Fore exhibited the same relationship of facial expressions and basic emotions that is seen in Western culture when they acted out stories.
- The Fore were familiar with the facial expressions and basic emotions of characters in stories.

Paragraph 3: Psychological researchers generally recognize that facial expressions reflect emotional states. In fact, various emotional states give rise to certain patterns of electrical activity in the facial muscles and in the brain. The facial-feedback hypothesis argues, however, that the causal relationship between emotions and facial expressions can also work in the opposite direction. According to this hypothesis, signals from the facial muscles ("feedback") are sent back to emotion centers of the brain, and so a person's facial expression can influence that person's emotional state. Consider Darwin's words: "The free expression by outward signs of an emotion intensifies it. On the other hand, the repression, as far as possible, of all outward signs softens our emotions." Can smiling give rise to feelings of good will, for example, and frowning to anger?

7. According to the passage, what did Darwin believe would happen to human emotions that were not expressed?

- They would become less intense.
- They would last longer than usual.
- They would cause problems later.
- They would become more negative.

Paragraph 4: Psychological research has given rise to some interesting findings concerning the facial-feedback hypothesis. Causing participants in experiments to smile, for example, leads them to report more positive feelings and to rate cartoons (humorous drawings of people or situations) as being more humorous. When they are caused to frown, they rate cartoons as being more aggressive.

8. According to the passage, research involving which of the following supported the facial-feedback hypothesis?

- The reactions of people in experiments to cartoons
- The tendency of people in experiments to cooperate
- The release of neurotransmitters by people during experiments
- The long-term effects of repressing emotions

9. The word rate in the passage is closest in meaning to

- judge
- reject
- draw
- want

Paragraph 6: Ekman's observation may be relevant to the British expression "keep a stiff upper lip" as a recommendation for handling stress. It might be that a "stiff" lip suppresses emotional response—as long as the

lip is not quivering with fear or tension. But when the emotion that leads to stiffening the lip is more intense, and involves strong muscle tension, facial feedback may heighten emotional response.

10. The word “**relevant**” in the passage is closest in meaning to

- contradictory
- confusing
- dependent
- applicable

11. According to the passage, stiffening the upper lip may have which of the following effects?

- It first suppresses stress, then intensifies it.
- It may cause fear and tension in those who see it.
- It can damage the lip muscles.
- It may either heighten or reduce emotional response.

Paragraph 2: ■Most investigators concur that certain facial expressions suggest the same emotions in all people. ■Moreover, people in diverse cultures recognize the emotions manifested by the facial expressions. ■In classic research Paul Ekman took photographs of people exhibiting the emotions of anger, disgust, fear, happiness, and sadness. ■He then asked people around the world to indicate what emotions were being depicted in them. Those queried ranged from European college students to members of the Fore, a tribe that dwells in the New Guinea highlands. All groups, including the Fore, who had almost no contact with Western culture, agreed on the portrayed emotions. The Fore also displayed familiar facial expressions when asked how they would respond if they were the characters in stories that called for basic emotional responses. Ekman and his colleagues more recently obtained similar results in a study of ten cultures in which participants were permitted to report that multiple emotions were shown by facial expressions. The participants generally agreed on which two emotions were being shown and which emotion was more intense.

12. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

This universality in the recognition of emotions was demonstrated by using rather simple methods.

Where would the sentence best fit?

13. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Psychological research seems to confirm that people associate particular facial expressions with the same emotions across cultures.

-
-
-

Answer Choices

- Artificially producing the Duchenne smile can cause a person to have pleasant feelings.
- Facial expressions and emotional states interact with each other through a variety of feedback mechanisms.
- People commonly believe that they can control their facial expressions so that their true emotions remain hidden.
- A person's facial expression may reflect the person's emotional state.

○Ekman argued that the ability to accurately recognize the emotional content of facial expressions was valuable for human beings.

○Facial expressions that occur as a result of an individual's emotional state may themselves feedback information that influences the person's emotions.

参考答案:

1. ○ 2

This is a Vocabulary question. The word being tested is despondent. It is highlighted in the passage. The correct answer is choice 2, "unhappy." The sentence in which the highlighted word appears uses despondent as a contrast to happy. Since unhappy is the opposite of happy, it provides the fullest possible contrast and is equivalent to the contrast between Joy and sadness at the beginning of the sentence.

2. ○ 3

This is a Rhetorical Purpose question. It is asking you why the author mentions "baring the teeth in a hostile way" in the passage. This phrase is highlighted in the passage. The correct answer is choice 3; baring the teeth is an example of a facial expression whose meaning is widely understood. The central theme of paragraph 1 of the passage is facial expressions that are universal. The author provides various examples of such expressions, and baring the teeth is mentioned as a universal sign of anger. The other choices are all mentioned in the passage, but not in conjunction with baring the teeth, so they are all incorrect.

3. ○ 2

This is a Vocabulary question. The word being tested is concur. It is highlighted in the passage. The correct answer is choice 2, "agree." Concur means to agree, so if investigators concur about the meaning of certain facial expressions, they agree on their meaning.

4. ○ 3

This is a Reference question. The word being tested is them, and it is highlighted in the passage. This is a simple pronoun-referent item. The word them refers to the photographs that Paul Eckman showed to people from diverse cultures, so the correct answer is choice 3, "photographs."

5. ○ 3

This is a Factual Information question asking for specific information that can be found in paragraph 2. The correct answer is choice 3, which states that the Fore people of New Zealand knew very little about Western culture. The paragraph explicitly says that the Fore had almost no contact with Western culture. None of the other three choices is mentioned in connection with the Fore, so none of them is correct.

6. ○ 3

This is a Sentence Simplification question. As with all of these items, a single sentence in the passage is highlighted:

The Fore also displayed familiar facial expressions when asked how they would respond if they were the characters in stories that called for basic emotional responses.

The correct answer is choice 3. It contains all of the essential ideas in the highlighted sentence without changing the meaning. This choice says that the Fore "exhibited the same relationship of facial and basic emotions that is seen in Western culture when they acted out stories." The sentence that precedes the highlighted sentence states that in a survey, the Fore agreed with Westerners on how various emotions are portrayed. Then the highlighted sentence says that in a different situation (story-telling) the Fores' expressions were also familiar; that is, these expressions were the same as those exhibited by Westerners in this situation. Choices 1 and 2 are incorrect because each one changes the highlighted sentence into a statement that is not true. Choice 4 is incorrect because it says that the Fore were familiar with the facial expressions of characters in stories. The highlighted sentence says that it was the investigators who were familiar with the Fores' expressions. This is a change in meaning, so it is incorrect.

7. ○ 1

This is a Factual Information question asking for specific information that can be found in the passage. The correct

answer is choice 1, emotions that are not expressed become less intense. This is correct based on the direct quotation of Darwin in paragraph 3. In that quotation, Darwin says that emotions that are freely expressed become more intense, while "on the other hand those that are not freely expressed are "softened," meaning that they become less intense. Choices 2, 3, and 4 are all incorrect because there is nothing in the passage that indicates Darwin ever believed these things about expressing emotions. Some or all of them may actually be true, but there is nothing in this passage that supports them.

8. ○ 1

This is a Factual Information question asking for specific information that can be found in the passage. You can see that the phrase "The facial-feedback hypothesis" is highlighted where it first appears in the passage in paragraph 3. The correct answer is choice 1, research supporting this hypothesis came from studying experiments of the reactions of people to cartoons. This idea is found in paragraph 4, which uses these experiments as an example of how facial feedback works. Choice 3, the release of neurotransmitters, is mentioned in paragraph 5 but, not in connection with the facial-feedback hypothesis, so it is incorrect. Choices 2 and 4 are not explicitly mentioned at all in the passage.

9. ○ 1

This is a Vocabulary question. The word being tested is rate, and it is highlighted in the passage. The correct answer is choice 1, "judge." Rate in this context means "to judge."

10. ○ 4

This is a Vocabulary question. The word being tested is relevant, and it is highlighted in the passage. The correct answer is choice 4, "applicable." Relevant means that Ekman's observation applies ("is applicable") to an expression.

11. ○ 4

This is a Factual Information question asking for specific information that can be found in the passage. The correct answer is choice 4; stiffening the upper lip may either heighten or reduce emotional response. This is stated explicitly in paragraph 6 of the passage as a possible paradox in the relationship between facial expressions and emotions.

Choice 1 is incorrect because paragraph 6 contradicts it.

Choice 2 is incorrect because the passage mentions only the fear and tension of a person trying to keep a stiff upper lip, not any fear or tension that expression may cause in others.

Choice 3 is incorrect because there is no suggestion anywhere in the passage that stiffening the upper lip may damage lip muscles.

12. ○ 3

This is an Insert Text question. You can see the four black squares in paragraph 2 that represent the possible answer choices here.

■ Most investigators concur that certain facial expressions suggest the same emotions in all people. ■ Moreover, people in diverse cultures recognize the emotions manifested by the facial expressions. ■ In classic research Paul Ekman took photographs of people exhibiting the emotions of anger, disgust, fear, happiness, and sadness. ■ He then asked people around the world to indicate what emotions were being depicted in them. Those queried ranged from European college students to members of the Fore, a tribe that dwells in the New Guinea highlands. All groups, including the Fore, who had almost no contact with Western culture, agreed on the portrayed emotions. The Fore also displayed familiar facial expressions when asked how they would respond if they were the characters in stories that called for basic emotional responses. Ekman and his colleagues more recently obtained similar results in a study of ten cultures in which participants were permitted to report that multiple

emotions were shown by facial expressions. The participants generally agreed on which two emotions were being shown and which emotion was more intense.

The sentence provided, "**This universality in the recognition of emotions was demonstrated by using rather simple methods,**" is best inserted at square 3. Square 3 is correct because the inserted sentence begins with the phrase "This universality." The universality being referred to is the fact, stated in the second sentence, that "people in diverse cultures recognize the emotions manifested by the facial expressions."

None of the other answer choices follows a sentence that contains a universal statement. Sentence 1 mentions that "Most investigators concur," which means that some do not. Therefore this is not a universal statement. Squares 2 and 4 are incorrect because there is nothing in either sentence to which "This universality" could refer.

13. ☐ 2, 4, 6

This is a Prose Summary question. It is completed correctly below. The correct choices are 2, 4, and 6. Choices 1, 3, and 5 are therefore incorrect.

情感的表达

在世界范围内各种不同的文化里，人们都是要经历欢乐和悲伤的，但我们怎么区分其他人是高兴还是沮丧呢？事实上，很多情感的表达可能是通用的。比如，微笑显然表示友好和赞同。查尔斯达尔文是进化论的创始人，他在19世纪曾指出，怀有敌意地露出牙齿表现的是愤怒的情绪，人类对面部表情的认知具有一定的生存值。例如，面部表情可以以非语言的方式帮你判断迎面而来的是敌还是友。

很多调查得出了同样的结论，即人类的某些面部表情表达的含义是通用的。此外，不同文化背景的人可以通过面部表情的识别来判断对方的情绪。在一个经典的研究项目中，保罗埃克曼拍下了一组人的照片，分别表示愤怒、厌恶、恐惧、幸福、悲伤。然后，他安排来自世界各地的人们识别照片中所表达的情感。这些人包括欧洲大学生，居住在新几内亚高地的部落等。包括几乎从未接触过西方文化的人在内的所有人得出了一致的答案。此外，问卷中还给出了一些人们熟悉的基本表情，要求答卷者回答如果你是故事中的人物你会作出哪种基本表情？埃克曼和他的同事们从近期的一项统计中得出了相同的结论，他们对来自10个不同文化背景的参与者们进行了调查，参与者可以通过多种面部表情传达复杂的情绪。画面表达了哪两种情感？其中那张更严肃？答案基本一致。

研究心理学的学者们通常认为，面部表情可以反映人们内心的情绪状态。事实上，各种情绪状态的波动都会使得面部肌肉和大脑的电波活动增加。然而，脸部回馈假说论者们却坚持，面部表情和情绪之间的因果关系也可能是反的。他们认为，脸部肌肉承载的信号会被传至大脑的控制情绪的部位中，因此人类面部表情会影响他们的情绪。试想达尔文的话：“自由的情绪表达方式会增强心中的情感。相反，如果抑制这种表达则会削弱心中的情感。”比如，微笑可以让你心情大好吗？皱眉会让你变得愤怒吗？

关于脸部回馈假说，心理学研究提供了一些有趣的发现。比如，让参与实验的人们微笑，他们会表现的更加积极，他们评价图片相对而言更加风趣幽默。当他们皱眉头时，则变得加咄咄逼人。

面部表情和内心情感之间存在什么样可能的联系呢？首先，是刺激。这是一个有机体活动的准备阶段。面部肌肉的紧张收缩会加剧这种刺激，如那些表现得极度的恐惧肌肉收缩。加强刺激的自我感知会加剧内心各种情绪。其次，他们的联系可能会涉及到大脑温度变化和神经递质的释放（传递神经冲动的物质）。面部肌肉的收缩反映并影响内心情绪状态。埃克曼发现，所谓的杜兴微笑，就是指眼睛周围的鱼尾纹和眼皮的微微下垂，引发眼睛表面的皮肤轻微朝着眼球方向下降，从而引起愉快的感觉。

埃克曼的看法可能与英国习语“保持咬紧牙关”有关，人们可以用过紧咬牙关缓解自身压力。很有可能是因为紧咬牙关抑制了消极情绪，只要嘴唇没紧张或者恐惧得发抖。但是，当内心情绪导致僵硬的嘴唇更加紧张时，面部表情强有力的收缩很有可能会加剧内心的情绪反应。

Geology and Landscape

Most people consider the landscape to be unchanging, but Earth is a dynamic body, and its surface is continually altering—slowly on the human time scale, but relatively rapidly when compared to the great age of Earth (about 4,500 billion years). There are two principal influences that shape the terrain: constructive processes such as uplift, which create new landscape features, and destructive forces such as erosion, which gradually wear away exposed landforms.

Hills and mountains are often regarded as the epitome of permanence, successfully resisting the destructive forces of nature, but in fact they tend to be relatively short-lived in geological terms. As a general rule, the higher a mountain is, the more recently it was formed; for example, the high mountains of the Himalayas are only about 50 million years old. Lower mountains tend to be older, and are often the eroded relics of much higher mountain chains. About 400 million years ago, when the present-day continents of North America and Europe were joined, the Caledonian mountain chain was the same size as the modern Himalayas. Today, however, the relics of the Caledonian orogeny (mountain-building period) exist as the comparatively low mountains of Greenland, the northern Appalachians in the United States, the Scottish Highlands, and the Norwegian coastal plateau.

The Earth's crust is thought to be divided into huge, movable segments, called plates, which float on a soft plastic layer of rock. Some mountains were formed as a result of these plates crashing into each other and forcing up the rock at the plate margins. In this process, sedimentary rocks that originally formed on the seabed may be folded upwards to altitudes of more than 26,000 feet. Other mountains may be raised by earthquakes, which fracture the Earth's crust and can displace enough rock to produce block mountains. A third type of mountain may be formed as a result of volcanic activity which occurs in regions of active fold mountain belts, such as in the Cascade Range of western North America. The Cascades are made up of lavas and volcanic materials. Many of the peaks are extinct volcanoes.

Whatever the reason for mountain formation, as soon as land rises above sea level it is subjected to destructive forces. The exposed rocks are attacked by the various weather processes and gradually broken down into fragments, which are then carried away and later deposited as sediments. Thus, any landscape represents only a temporary stage in the continuous battle between the forces of uplift and those of erosion.

The weather, in its many forms, is the main agent of erosion. Rain washes away loose soil and penetrates cracks in the rocks. Carbon dioxide in the air reacts with the rainwater, forming a weak acid (carbonic acid) that may chemically attack the rocks. The rain seeps underground and the water may reappear later as springs. These springs are the sources of streams and rivers, which cut through the rocks and carry away debris from the mountains to the lowlands.

Under very cold conditions, rocks can be shattered by ice and frost. Glaciers may form in permanently cold areas, and these slowly moving masses of ice cut out valleys, carrying with them huge quantities of eroded rock debris. In dry areas the wind is the principal agent of erosion. It carries fine particles of sand, which bombard exposed rock surfaces, thereby wearing them into yet more sand. Even living things contribute to the formation of landscapes. Tree roots force their way into cracks in rocks and, in so doing, speed their splitting. In contrast, the roots of grasses and other small plants may help to hold loose soil fragments together, thereby helping to prevent erosion by the wind.

Paragraph 1: Most people consider the landscape to be unchanging, but Earth is a dynamic body, and its surface is continually altering—slowly on the human time scale, but relatively rapidly when compared to the great age of Earth (about 4,500 billion years). There are two principal influences that shape the terrain: constructive processes such as uplift, which create new landscape features, and destructive forces such as erosion, which gradually wear away exposed landforms.

1. According to paragraph 1, which of the following statements is true of changes in Earth's landscape?

- They occur more often by uplift than by erosion.
- They occur only at special times.
- They occur less frequently now than they once did.
- They occur quickly in geological terms.

2. The word “relatively” in the passage is closest in meaning to

- unusually
- comparatively
- occasionally
- naturally

Paragraph 2: Hills and mountains are often regarded as the epitome of permanence, successfully resisting the destructive forces of nature, but in fact they tend to be relatively short-lived in geological terms. As a general rule, the higher a mountain is, the more recently it was formed; for example, the high mountains of the Himalayas are only about 50 million years old. Lower mountains tend to be older, and are often the eroded relics of much higher mountain chains. About 400 million years ago, when the present-day continents of North America and Europe were joined, the Caledonian mountain chain was the same size as the modern Himalayas. Today, however, the relics of the Caledonian orogeny (mountain-building period) exist as the comparatively low mountains of Greenland, the northern Appalachians in the United States, the Scottish Highlands, and the Norwegian coastal plateau.

3. Which of the following can be inferred from paragraph 2 about the mountains of the Himalayas?

- Their current height is not an indication of their age.
- At present, they are much higher than the mountains of the Caledonian range.
- They were a uniform height about 400 million years ago.
- They are not as high as the Caledonian mountains were 400 million years ago.

4. The word “relics” in the passage is closest in meaning to

- resemblances
- regions
- remains
- restorations

Paragraph 3: The Earth's crust is thought to be divided into huge, movable segments, called plates, which float on a soft plastic layer of rock. Some mountains were formed as a result of these plates crashing into each other and forcing up the rock at the plate margins. In this process, sedimentary rocks that originally formed on the seabed may be folded upwards to altitudes of more than 26,000 feet. Other mountains may be raised by earthquakes, which fracture the Earth's crust and can displace enough rock to produce block mountains. A third type of mountain may be formed as a result of volcanic activity which occurs in regions of active fold mountain belts, such as in the Cascade Range of western North America. The Cascades are made up of lavas and volcanic materials. Many of the peaks are extinct volcanoes.

5. According to paragraph 3, one cause of mountain formation is the

- effect of climatic change on sea level
- slowing down of volcanic activity
- force of Earth's crustal plates hitting each other
- replacement of sedimentary rock with volcanic rock

Paragraph 5: The weather, in its many forms, is the main agent of erosion. Rain washes away loose soil and penetrates cracks in the rocks. Carbon dioxide in the air reacts with the rainwater, forming a weak acid (carbonic acid) that may chemically attack the rocks. The rain seeps underground and the water may reappear later as springs. These springs are the sources of streams and rivers, which cut through the rocks and carry away debris from the mountains to the lowlands.

6. Why does the author mention Carbon dioxide in the passage?

- To explain the origin of a chemical that can erode rocks
- To contrast carbon dioxide with carbonic acid
- To give an example of how rainwater penetrates soil
- To argue for the desirability of preventing erosion

7. The word "seeps" in the passage is closest in meaning to

- dries gradually
- flows slowly
- freezes quickly
- warms slightly

Paragraph 6: Under very cold conditions, rocks can be shattered by ice and frost. Glaciers may form in permanently cold areas, and these slowly moving masses of ice cut out valleys, carrying with them huge quantities of eroded rock debris. In dry areas the wind is the principal agent of erosion. It carries fine particles of sand, which bombard exposed rock surfaces, thereby wearing them into yet more sand. Even living things contribute to the formation of landscapes. Tree roots force their way into cracks in rocks and, in so doing, speed their splitting. In contrast, the roots of grasses and other small plants may help to hold loose soil fragments together, thereby helping to prevent erosion by the wind.

8. The word them in the passage refers to

- cold areas
- masses of ice
- valleys
- rock debris

Paragraph 2: Hills and mountains are often regarded as the epitome of permanence, successfully resisting the destructive forces of nature, but in fact they tend to be relatively short-lived in geological terms. As a general rule, the higher a mountain is, the more recently it was formed; for example, the high mountains of the Himalayas are only about 50 million years old. Lower mountains tend to be older, and are often the eroded relics of much higher mountain chains. About 400 million years ago, when the present-day continents of North America and Europe were joined, the Caledonian mountain chain was the same size as the modern Himalayas. Today, however, the relics of the Caledonian orogeny (mountain-building period) exist as the comparatively low mountains of Greenland, the northern Appalachians in the United States, the Scottish Highlands, and the Norwegian coastal plateau.

9. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- When they are relatively young, hills and mountains successfully resist the destructive forces of nature.
- Although they seem permanent, hills and mountains exist for a relatively short period of geological time.
- Hills and mountains successfully resist the destructive forces of nature, but only for a short time.
- Hills and mountains resist the destructive forces of nature better than other types of landforms.

Paragraph 6: Under very cold conditions, rocks can be shattered by ice and frost. Glaciers may form in permanently cold areas, and these slowly moving masses of ice cut out valleys, carrying with them huge quantities of eroded rock debris. ■ In dry areas the wind is the principal agent of erosion. ■ It carries fine particles of sand, which bombard exposed rock surfaces, thereby wearing them into yet more sand. ■ Even living things contribute to the formation of landscapes. ■ Tree roots force their way into cracks in rocks and, in so doing, speed their splitting. In contrast, the roots of grasses and other small plants may help to hold loose soil fragments together, thereby helping to prevent erosion by the wind.

10. According to paragraph 6, which of the following is both a cause and result of erosion?

- glacial activity
- rock debris
- tree roots
- sand

11. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Under different climatic conditions, another type of destructive force contributes to erosion.
Where would the sentence best fit?

12. **Directions:** Three of the answer choices below are used in the passage to illustrate constructive processes and two are used to illustrate destructive processes. Complete the table by matching appropriate answer choices to the processes they are used to illustrate. **This question is worth 3 points.**

CONSTRUCTIVE PROCESSES	DESTRUCTIVE PROCESSES
<ul style="list-style-type: none">•••	<ul style="list-style-type: none">••

Answer Choices

- Collision of Earth's crustal plates
- Separation of continents
- Wind-driven sand
- Formation of grass roots in soil
- Earthquakes
- Volcanic activity
- Weather processes

参考答案:

1. ○ 4

This is a Factual Information question asking for specific information that can be found in paragraph 1. The correct answer is choice 4. Sentence 1 of the paragraph explicitly states that Earth's landscape changes relatively rapidly compared to Earth's overall age. Choice 1, on the frequency of landscape changes, is contradicted by the paragraph. Choice 2, that landscape changes occur only at special times, is also contradicted by the paragraph. Choice 3, the frequency of landscape changes, is not mentioned.

2. ○ 2

This is a Vocabulary question. The word being tested is *relatively*, and it is highlighted in the passage. The correct answer is choice 2. The sentence in which *relatively* appears is comparing Earth's time scale to the human time scale, so "comparatively" is the correct answer.

3. ○ 2

This is an Inference question asking for an inference that can be supported by paragraph 2. The correct answer choice 2, the Himalayas are higher than the Caledonian mountains. The paragraph states that younger mountains are generally higher than older mountains. It also states that the Himalayas are much younger than the Caledonians. Since the Himalayas are the younger range and Lounger mountain ranges are higher- than older ranges, we can infer that the younger Himalayas are higher than the older Caledonians.

Choices 1 and 4 are incorrect because they explicitly contradict the passage. The height of the Himalayas is an indication of their age, and the Himalayas are about the same height that the Caledonians were 400 million years ago. Choice 3 is incorrect because there is nothing in the paragraph about "uniform height."

4. ○ 3

This is a Vocabulary question. The word being tested is *relics*, and it is highlighted in the passage. Choice 3 is the correct answer. The *relics* of the Caledonian range are what is left of them. "Remains" means what is left of something, so it is the correct answer.

5. ○ 3

This is a Factual Information question asking for specific information that can be found in paragraph 3. The correct answer is choice 3, mountains are formed by crustal plates hitting each other. The paragraph states that mountains are formed in three ways: by crustal plates hitting each other, by earthquakes, and by volcanoes. Choices 1, 2, and 4 are not among these causes of mountain formation, so they are therefore incorrect.

6. ○ 1

This is a Rhetorical Purpose question. It asks why the author mentions "carbon dioxide" in the passage. This term is highlighted in the passage. The correct answer is choice 1; carbon dioxide is mentioned to explain the origin of a chemical that can erode rocks. The author is describing a particular cause of erosion, and the starting point of that process is carbon dioxide.

7. ○ 2

This is a Vocabulary question. The word being tested is *seeps*, and it is highlighted in the passage. Choice 2, "Rows slowly," is the correct answer. The sentence is describing the way in which rain moves underground from Earth's surface. It cannot do this by "drying" (choice 1), "freezing" (choice 3), or "warming" (choice 4).

8. ○ 2

This is a Reference question. The word being tested is *them*, and it is highlighted in the passage. Choice 2, "masses

of ice" is the correct answer. This is a simple pronoun-referent item. The word *they* refers to the glaciers that are carrying eroded rock. Notice that in this case, a whole series of words separates the pronoun from its referent.

9. ○ 2

This is a Sentence Simplification question. As with all of these items, a single sentence in the passage is highlighted:

Hills and mountains are often regarded as the epitome of permanence: successfully resisting the destructive forces of nature, but in fact they tend to be relatively short-lived in geological terms.

The correct answer is choice 2. That choice contains all of the essential information in the highlighted sentence. It omits the information in the second clause of the highlighted sentence ("successfully resisting the destructive forces of nature") because that information is not essential to the meaning. Choices 1, 3, and 4 are all incorrect because they change the meaning of the highlighted sentence. Choice 1 adds information on the age of a mountain that is not mentioned in the highlighted sentence. Choice 3 introduces information about how long mountains resist forces of nature in absolute terms; the highlighted sentence says that the resistance is relatively short in geological terms, which is an entirely different meaning. Choice 4 compares mountains to other land forms. The highlighted sentence does not make any such comparison.

10. ○ 4

This is a Factual Information question asking for specific information that can be found in paragraph 6. The correct answer is choice 4, "sand." Sentences 3 and 4 of that paragraph describe erosion in dry areas. Sand is carried by wind and bombards rock; this bombardment breaks down the rock, and, as a result, more sand is created. Thus sand is both the cause and the result of erosion, so choice 4 is correct. Glacial activity (choice 1) and tree roots (choice 3) are both mentioned only as causes of erosion. Rock debris (choice 2) is mentioned only as a result of erosion.

11. ○ 1

This is an Insert Text question. You can see the four black squares in paragraph 6 that represent the possible answer choices here.

Under very cold conditions, rocks can be shattered by ice and frost. Glaciers may form in permanently cold areas, and these slowly moving masses of ice cut out valleys, carrying with them huge quantities of eroded rock debris. ■ In dry areas the wind is the principal agent of erosion. ■ It carries fine particles of sand, which bombard exposed rock surfaces, thereby wearing them into yet more sand. ■ Even living things contribute to the formation of landscapes. ■ Tree roots force their way into cracks in rocks and, in so doing, speed their splitting. In contrast, the roots of grasses and other small plants may help to hold loose soil fragments together, thereby helping to prevent erosion by the wind.

The sentence provided, "**Under different climatic conditions, another type of destructive force contributes to erosion,**" is best inserted at square 1.

Square 1 is correct because the inserted sentence is a transitional sentence, moving the discussion away from one set of climatic conditions (cold) to another set of climatic conditions (dryness). It is at square 1 that the transition between topics takes place.

Squares 2, 3, and 4 all precede sentences that provide details of dry climatic conditions. No transition is taking place at any of those places, so the inserted sentence is not needed.

12. ○ Constructive processes: 1, 5, 6

○ Destructive processes: 3, 7

This is a Fill in a Table question. It is completed correctly below. The correct choices for the "constructive processes" column are 1, 5, and 6. Choices 3 and 7 are the correct choices for the "destructive processes" column.

Choices 2 and 4 should not be used in either column.

地理和地貌

大部分人认为自然风景是一成不变的，事实上地球是一个动态的机体，他的外貌在人类文明进程中一直保持着持续缓慢的变化。当然，与大约 **45000** 亿年前的冰河时代的地貌变化相比，这个进程的确快了很多。主要有两种影响会改变地形：建设性的过程，如产生新的地表特征的地壳隆起；和破坏性的力量，如缓慢清除突出地貌的地表侵蚀。

山峰和山脉因为能够经受得住自然的洗礼，通常被认作是永恒的代名词，但地质学的角度上来说，他们的存在实际上从是相对比较短暂的。一般来说，山峰越高，形成得越晚。例如喜马拉雅山，她只有 **5000** 万年的历史。低矮山峦的历史往往更加久远，它们通常是高耸的山脉崩塌后的遗留物。在大约 **4** 亿年前，当今天的北美和欧洲大陆相结合的时候，加勒多尼亚山脉与现今的喜马拉雅山脉同样雄伟，但是，加勒多尼亚山脉的形成（造山运动）在今天遗留下来的却只是相对非常低矮的格林兰山脉：美国的北阿巴拉契亚山区，苏格兰高地和挪威海岸高原。

地壳分裂成为巨大可移动的板块，板块在柔软的岩石可塑层中漂移。有的时候，这些板块互相冲击并迫使板块边缘的岩石突起，从而形成山脉。在这个过程中，原本形成在海床上的沉积岩可能被拱起高达 **26,000** 多英尺。在另一种情况下，地震将地壳震裂。产生的岩石堆积形成断块山，从而形成山脉。还有一种情况，活火山带的火山运动也会促使山脉的形成，例如北美洲西部的喀斯喀特山脉，他的产生就是由火山岩和火山灰形成的，上面的许多山峰都是死火山。

不论山脉形成的具体原因是什么，一旦陆地高出海平面，都难逃脱被外力摧毁的厄运。裸露的岩石遭受着不断变化天气的攻击，逐渐被碾成碎石块带走，然后形成沉积岩。因此，任何地貌都只是一个短暂的阶段，它所代表的是造山与侵蚀两种力量持续斗争。

多种多样的天气加速了大自然对地貌的侵蚀。雨水冲刷了疏松的土壤并渗入到岩石的缝隙。二氧化碳在空气中与雨水相互作用形成了可以对岩石进行化学腐蚀的弱酸(碳酸)。雨水渗透到地下并能在不久后以泉水的形式流出，那些从岩石间穿过并将碎石从高山带到平原的溪水就是来源于这些泉水。

在严寒的环境下，岩石能被冰霜粉碎。冰川在长期寒冷的区域形成，这些缓慢移动的大量冰块带着大量的腐蚀岩屑阻断了山谷。在干旱地带，风是大自然侵蚀的主要手段。它带着沙子中的微粒冲击着裸露的岩石表面，把岩石吹散成更多的沙粒。动植物们对自然风景的形成也是功不可没，大树植根于岩缝之中，加速了岩石的碎裂。相比之下，草根和其他矮小植物则利于固定土壤，弱化了风蚀作用的影响。

《新托福真题详解--阅读分卷》（第一册）中包含了 **TPO1-9** 和 **Online Test** 的题目解析

TPO-1

Groundwater

Groundwater is the word used to describe water that saturates the ground, filling all the available spaces. By far the most abundant type of groundwater is meteoric water; this is the groundwater that circulates as part of the water cycle. Ordinary meteoric water is water that has soaked into the ground from the surface, from precipitation (rain and snow) and from lakes and streams. There it remains, sometimes for long periods, before emerging at the surface again. At first thought it seems incredible that there can be enough space in the “solid” ground underfoot to hold all this water.

The necessary space is there, however, in many forms. The commonest spaces are those among the particles—sand grains and tiny pebbles—of loose, unconsolidated sand and gravel. Beds of this material, out of sight beneath the soil, are common. They are found wherever fast rivers carrying loads of coarse sediment once flowed. For example, as the great ice sheets that covered North America during the last ice age steadily melted away, huge volumes of water flowed from them. The water was always laden with pebbles, gravel, and sand, known as glacial outwash, that was deposited as the flow slowed down.

The same thing happens to this day, though on a smaller scale, wherever a sediment-laden river or stream emerges from a mountain valley onto relatively flat land, dropping its load as the current slows: the water usually spreads out fanwise, depositing the sediment in the form of a smooth, fan-shaped slope. Sediments are also dropped where a river slows on entering a lake or the sea, the deposited sediments are on a lake floor or the seafloor at first, but will be located inland at some future date, when the sea level falls or the land rises; such beds are sometimes thousands of meters thick.

In lowland country almost any spot on the ground may overlie what was once the bed of a river that has since become buried by soil; if they are now below the water’s upper surface (the water table), the gravels and sands of the former riverbed, and its sandbars, will be saturated with groundwater.

So much for unconsolidated sediments. Consolidated (or cemented) sediments, too, contain millions of minute water-holding pores. This is because the gaps among the original grains are often not totally plugged with cementing chemicals; also, parts of the original grains may become dissolved by percolating groundwater, either while consolidation is taking place or at any time afterwards. The result is that sandstone, for example, can be as porous as the loose sand from which it was formed.

Thus a proportion of the total volume of any sediment, loose or cemented, consists of empty space. Most crystalline rocks are much more solid; a common exception is basalt, a form of solidified volcanic lava, which is sometimes full of tiny bubbles that make it very porous.

The proportion of empty space in a rock is known as its porosity. But note that porosity is not the same as

permeability, which measures the ease with which water can flow through a material; this depends on the sizes of the individual cavities and the crevices linking them.

Much of the water in a sample of water-saturated sediment or rock will drain from it if the sample is put in a suitable dry place. But some will remain, clinging to all solid surfaces. It is held there by the force of surface tension without which water would drain instantly from any wet surface, leaving it totally dry. The total volume of water in the saturated sample must therefore be thought of as consisting of water that can, and water that cannot, drain away.

The relative amount of these two kinds of water varies greatly from one kind of rock or sediment to another, even though their porosities may be the same. What happens depends on pore size. If the pores are large, the water in them will exist as drops too heavy for surface tension to hold, and it will drain away; but if the pores are small enough, the water in them will exist as thin films, too light to overcome the force of surface tension holding them in place; then the water will be firmly held.

Paragraph 1: Groundwater is the word used to describe water that saturates the ground, filling all the available spaces. By far the most abundant type of groundwater is meteoric water; this is the groundwater that circulates as part of the water cycle. Ordinary meteoric water is water that has soaked into the ground from the surface, from precipitation (rain and snow) and from lakes and streams. There it remains, sometimes for long periods, before emerging at the surface again. At first thought it seems incredible that there can be enough space in the “solid” ground underfoot to hold all this water.

1. Which of the following can be inferred from paragraph 1 about the ground that we walk on?

- It cannot hold rainwater for long periods of time.
- It prevents most groundwater from circulating.
- It has the capacity to store large amounts of water.
- It absorbs most of the water it contains from rivers.

2. The word “incredible” in the passage is closest in meaning to

- confusing
- comforting
- unbelievable
- interesting

Paragraph 2: The necessary space is there, however, in many forms. The commonest spaces are those among the particles—sand grains and tiny pebbles—of loose, unconsolidated sand and gravel. Beds of this material, out of sight beneath the soil, are common. They are found wherever fast rivers carrying loads of coarse sediment once flowed. For example, as the great ice sheets that covered North America during the last ice age steadily melted away, huge volumes of water flowed from them. The water was always laden with pebbles, gravel, and sand, known as glacial outwash, that was deposited as the flow slowed down.

3. The word “out of sight” in the passage is closest in meaning to

- far away
- hidden
- partly visible
- discovered

4. According to paragraph 2, where is groundwater usually found?

- Inside pieces of sand and gravel
- On top of beds of rock
- In fast rivers that are flowing beneath the soil
- In spaces between pieces of sediment

5. The phrase “glacial outwash” in the passage refers to

- fast rivers
- glaciers
- the huge volumes of water created by glacial melting
- the particles carried in water from melting glaciers

Paragraph 3: The same thing happens to this day, though on a smaller scale, wherever a sediment-laden river or stream emerges from a mountain valley onto relatively flat land, dropping its load as the current slows: the water usually spreads out fanwise, depositing the sediment in the form of a smooth, fan-shaped slope. Sediments are also dropped where a river slows on entering a lake or the sea, the deposited sediments are on a lake floor or the seafloor at first, but will be located inland at some future date, when the sea level falls or the land rises; such beds are sometimes thousands of meters thick.

6. All of the following are mentioned in paragraph 3 as places that sediment-laden rivers can deposit their sediments EXCEPT

- A mountain valley
- Flat land
- A lake floor
- The seafloor

Paragraph 4: In lowland country almost any spot on the ground may overlie what was once the bed of a river that has since become buried by soil; if they are now below the water’s upper surface (the water table), the gravels and sands of the former riverbed, and its sandbars, will be saturated with groundwater.

7. The word “overlie” in the passage is closest in meaning to

- cover
- change
- separate
- surround

Paragraph 5: So much for unconsolidated sediments. Consolidated (or cemented) sediments, too, contain millions of minute water-holding pores. This is because the gaps among the original grains are often not totally plugged with cementing chemicals; also, parts of the original grains may become dissolved by percolating groundwater, either while consolidation is taking place or at any time afterwards. The result is that sandstone, for example, can be as porous as the loose sand from which it was formed.

8. The phrase “So much for” in the passage is closest in meaning to

- that is enough about
- now let us turn to
- of greater concern are
- this is related to

9. The word “plugged” in the passage is closest in meaning to

- washed
- dragged
- filled up
- soaked through

Paragraph 6: Thus a proportion of the total volume of any sediment, loose or cemented, consists of empty space. Most crystalline rocks are much more solid; a common exception is basalt, a form of solidified volcanic lava, which is sometimes full of tiny bubbles that make it very porous.

Paragraph 7: The proportion of empty space in a rock is known as its porosity. But note that porosity is not the same as permeability, which measures the ease with which water can flow through a material; this depends on the sizes of the individual cavities and the crevices linking them.

10. According to paragraphs 6 and 7, why is basalt unlike most crystalline forms of rock?

- It is unusually solid.
- It often has high porosity.
- It has a low proportion of empty space.
- It is highly permeable.

11. What is the main purpose of paragraph 7?

- To explain why water can flow through rock
- To emphasize the large amount of empty space in all rock
- To point out that a rock cannot be both porous and permeable
- To distinguish between two related properties of rock

Paragraph 9: The relative amount of these two kinds of water varies greatly from one kind of rock or sediment to another, even though their porosities may be the same. What happens depends on pore size. If the pores are large, the water in them will exist as drops too heavy for surface tension to hold, and it will drain away; but if the pores are small enough, the water in them will exist as thin films, too light to overcome the force of surface tension holding them in place; then the water will be firmly held.

12. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Surface tension is not strong enough to retain drops of water in rocks with large pores but it strong enough to hold on to thin films of water in rocks with small pores.
- Water in rocks is held in place by large pores and drains away from small size pores through surface tension.
- Small pores and large pores both interact with surface tension to determine whether a rock will hold water as heavy drops or as a thin film.
- If the force of surface tension is too weak to hold water in place as heavy drops, the water will continue to be held firmly in place as a thin film when large pores exist.

Paragraph 8: Much of the water in a sample of water-saturated sediment or rock will drain from it if the sample is put in a suitable dry place. ■ But some will remain, clinging to all solid surfaces. ■ It is held there by the force of surface tension without which water would drain instantly from any wet surface, leaving it totally dry. ■ The total volume of water in the saturated sample must therefore be thought of as consisting of water that can, and water that cannot, drain away. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

What, then, determines what proportion of the water stays and what proportion drains away?

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Much of the ground is actually saturated with water.

-
-
-

Answer choices

- Sediments that hold water were spread by glaciers and are still spread by rivers and streams.
- Water is stored underground in beds of loose sand and gravel or in cemented sediment.
- The size of a saturated rock's pores determines how much water it will retain when the rock is put in a dry place.
- Groundwater often remains underground for a long time before it emerges again.
- Like sandstone, basalt is a crystalline rock that is very porous.
- Beds of unconsolidated sediments are typically located at inland sites that were once underwater.

参考答案:

1. ○3
2. ○3
3. ○2
4. ○4
5. ○4
6. ○1
7. ○1
8. ○1
9. ○3
10. ○2
11. ○4
12. ○1
13. ○4

14. Sediments that hold water...

Water is stored underground...

The size of a saturated rock's...

地下水

地下水是指渗入到地下并将所有岩石空隙填满的水。到现在为止，雨水是最丰富的地下水资源，是地下水在水循环中的一个环节。普通的雨水会从地表、降水以及湖泊河流侵入到地下。在冒出地表之前，这些地下水有时会长时间留在地下。在我们脚下坚实的土地中竟然有足够的空间储存这些水，这在一开始会让人觉得难以置信。

地下水所需的储存空间多种多样。松散的砂子和砾石间有许多颗粒和小石子，他们之间的空隙是最常见的储存地下水的空间。由这些颗粒组成的水床非常普遍，通常位于看不见的土壤下方，在湍急的河流曾经流过的地方都能找到它们的踪迹。比如，冰河时代覆盖北美的巨大冰层逐渐融化，大量水从那儿流出。水里总会携带些石子、砾石和沙石，这就是所谓的冰河期的冰水沉积，这些颗粒会随着水流的减速而沉淀。

现代也有冰水沉积，尽管规模相对较小。凡是有携带泥沙的河流或者溪流从山谷流至相对平坦的地面时，砂石就随着水流速度的减慢逐渐沉淀；水流通常呈扇形扩散，它们所携带的砂石也会沉淀为光滑的扇形斜面。当河流汇入湖泊和海洋的时候也会有沉淀，这些沉淀最初在湖底或海底，但将来海平面下降或者陆地崛起时，它们就会分布于内陆，通常厚达几千米。

低地区域上的任何位置可能就是曾经的河床，后续被土壤覆盖而变成现在的样子。如果那些河床和沙洲现在位于地下水位之下，一定会有大量的地下水浸在它们的沙砾和沙石之间。

以上说的都是松散的沉积物，那些坚固的沉积物，也拥有以数万计的毛细孔来容纳水。因为最初颗粒间的缝隙通常并未完全被粘固的化学物质塞满，而且部分颗粒很可能在固化时或固化后被渗入的地下水溶解；结果这些砂岩最终变得和形成它的散沙一样多孔。

因此，不管沉积物是疏松还是坚固，他们中一定有空间。大部分结晶体岩石都非常坚硬，但也有例外，最常见的就是玄武岩，它是一种固化的火山熔岩，经常充满了微小气泡，从而变得十分多孔。

岩石的多孔性就是指其中空隙的比例。但需要注意的是，多孔性与渗透性是不同的。渗透性衡量的是水渗透物质的难易程度，它取决于与单个空隙以及连接空隙间裂缝的大小。

当充满水分的沉淀物或者岩石样本被放置在适合的干燥环境中时，大部分的水分会流干，但仍有部分水会继续附着在坚实的表面上。要不是因为表面张力，这些水分也会立刻蒸发，仅留下完全干燥的样本。因此，试验样本的含水量既包括可以流干的水，也包括不能流干的水。

这两种水的相对含量因岩石或沉积物种类不同而改变，即便它们有相同比例的空隙，还取决于空隙的大小。如果空隙很大，其中的水会形成水滴，太重足以克服吸引它的表面张力，就会流走；但如果空隙够小，水会像薄膜一样，太轻无法克服表面张力，从而稳稳地附着在空隙表面上。

The Origins of Theater

In seeking to describe the origins of theater, one must rely primarily on speculation, since there is little concrete evidence on which to draw. The most widely accepted theory, championed by anthropologists in the late nineteenth and early twentieth centuries, envisions theater as emerging out of myth and ritual. The process perceived by these anthropologists may be summarized briefly. During the early stages of its development, a society becomes aware of forces that appear to influence or control its food supply and well-being. Having little understanding of natural causes, it attributes both desirable and undesirable occurrences to supernatural or magical forces, and it searches for means to win the favor of these forces. Perceiving an apparent connection between certain actions performed by the group and the result it desires, the group repeats, refines and formalizes those actions into fixed ceremonies, or rituals.

Stories (myths) may then grow up around a ritual. Frequently the myths include representatives of those supernatural forces that the rites celebrate or hope to influence. Performers may wear costumes and masks to represent the mythical characters or supernatural forces in the rituals or in accompanying celebrations. As a person becomes more sophisticated, its conceptions of supernatural forces and causal relationships may change. As a result, it may abandon or modify some rites. But the myths that have grown up around the rites may continue as part of the group's oral tradition and may even come to be acted out under conditions divorced from these rites. When this occurs, the first step has been taken toward theater as an autonomous activity, and thereafter entertainment and aesthetic values may gradually replace the former mystical and socially efficacious concerns.

Although origin in ritual has long been the most popular, it is by no means the only theory about how the theater came into being. Storytelling has been proposed as one alternative. Under this theory, relating and listening to stories are seen as fundamental human pleasures. Thus, the recalling of an event (a hunt, battle, or other feat) is elaborated through the narrator's pantomime and impersonation and eventually through each role being assumed by a different person.

A closely related theory sees theater as evolving out of dances that are primarily pantomimic, rhythmical or gymnastic, or from imitations of animal noises and sounds. Admiration for the performer's skill, virtuosity, and grace are seen as motivation for elaborating the activities into fully realized theatrical performances.

In addition to exploring the possible antecedents of theater, scholars have also theorized about the motives that led people to develop theater. Why did theater develop, and why was it valued after it ceased to fulfill the function of ritual? Most answers fall back on the theories about the human mind and basic human needs. One, set forth by Aristotle in the fourth century B.C., sees humans as naturally imitative—as taking pleasure in imitating persons, things, and actions and in seeing such imitations. Another, advanced in the twentieth century, suggests that humans have a gift for fantasy, through which they seek to reshape reality into more satisfying forms than those encountered in daily life. Thus, fantasy or fiction (of which drama is one form) permits people to objectify their anxieties and fears, confront them, and fulfill their hopes in fiction if not fact. The theater, then, is one tool whereby people define and understand their world or escape from unpleasant realities.

But neither the human imitative instinct nor a penchant for fantasy by itself leads to an autonomous theater. Therefore, additional explanations are needed. One necessary condition seems to be a somewhat detached view of human problems. For example, one sign of this condition is the appearance of the comic vision, since comedy requires sufficient detachment to view some deviations from social norms as ridiculous rather than as serious

threats to the welfare of the entire group. Another condition that contributes to the development of autonomous theater is the emergence of the aesthetic sense. For example, some early societies ceased to consider certain rites essential to their well-being and abandoned them, nevertheless, they retained as parts of their oral tradition the myths that had grown up around the rites and admired them for their artistic qualities rather than for their religious usefulness.

Paragraph 1: In seeking to describe the origins of theater, one must rely primarily on speculation, since there is little concrete evidence on which to draw. The most widely accepted theory, championed by anthropologists in the late nineteenth and early twentieth centuries, envisions theater as emerging out of myth and ritual. The process perceived by these anthropologists may be summarized briefly. During the early stages of its development, a society becomes aware of forces that appear to influence or control its food supply and well-being. Having little understanding of natural causes, it attributes both desirable and undesirable occurrences to supernatural or magical forces, and it searches for means to win the favor of these forces. Perceiving an apparent connection between certain actions performed by the group and the result it desires, the group repeats, refines and formalizes those actions into fixed ceremonies, or rituals.

1. The word "championed" in the passage is closest in meaning to
 - changed
 - debated
 - created
 - supported
2. The word "attributes" in the passage is closest in meaning to
 - ascribes
 - leaves
 - limits
 - contrasts
3. According to paragraph 1, theories of the origins of theater
 - are mainly hypothetical
 - are well supported by factual evidence
 - have rarely been agreed upon by anthropologists
 - were expressed in the early stages of theater's development
4. According to paragraph 1, why did some societies develop and repeat ceremonial actions?
 - To establish a positive connection between the members of the society
 - To help society members better understand the forces controlling their food supply
 - To distinguish their beliefs from those of other societies
 - To increase the society's prosperity

Paragraph 2: Stories (myths) may then grow up around a ritual. Frequently the myths include representatives of those supernatural forces that the rites celebrate or hope to influence. Performers may wear costumes and masks to represent the mythical characters or supernatural forces in the rituals or in accompanying celebrations. As a person becomes more sophisticated, its conceptions of supernatural forces and causal relationships may change. As a result, it may abandon or modify some rites. But the myths that have grown up around the rites may continue as part of the group's oral tradition and may even come to be acted out under conditions divorced from these rites. When this occurs, the first step has been taken toward theater as

an **autonomous** activity, and thereafter entertainment and aesthetic values may gradually replace the former mystical and socially efficacious concerns.

5. The word "**this**" in the passage refers to
- the acting out of rites
 - the divorce of ritual performers from the rest of society
 - the separation of myths from rites
 - the celebration of supernatural forces
6. The word "**autonomous**" in the passage is closest in meaning to
- artistic
 - important
 - independent
 - established
7. According to paragraph 2, what may cause societies to abandon certain rites?
- Emphasizing theater as entertainment
 - Developing a new understanding of why events occur
 - Finding a more sophisticated way of representing mythical characters
 - Moving from a primarily oral tradition to a more written tradition

Paragraph 5: In addition to exploring the possible antecedents of theater, scholars have also theorized about the motives that led people to develop theater. Why did theater develop, and why was it valued after it ceased to fulfill the function of ritual? Most answers fall back on the theories about the human mind and basic human needs. One, set forth by Aristotle in the fourth century B.C., sees humans as naturally imitative—as taking pleasure in imitating persons, things, and actions and in seeing such imitations. Another, advanced in the twentieth century, suggests that humans have a gift for fantasy, through which they seek to reshape reality into more satisfying forms than those encountered in daily life. Thus, fantasy or fiction (of which drama is one form) permits people to objectify their anxieties and fears, confront them, and fulfill their hopes in fiction if not fact. The theater, then, is one tool whereby people define and understand their world or escape from unpleasant realities.

8. All of following are mentioned in paragraph 5 as possible reasons that led societies to develop theater EXCEPT:

- Theater allows people to face that they are afraid of.
- Theater gives an opportunity to imagine a better reality.
- Theater is a way to enjoy imitating other people.
- Theater provides people the opportunity to better understand the human mind.

9. Which of the following best describes the organization of paragraph 5?

- The author presents two theories for a historical phenomenon.
- The author argues against theories expressed earlier in the passage.
- The author argues for replacing older theories with a new one.
- The author points out problems with two popular theories.

Paragraph 6: But neither the human imitative instinct nor a **penchant** for fantasy by itself leads to an autonomous theater. Therefore, additional explanations are needed. One necessary condition seems to be a somewhat detached view of human problems. For example, one sign of this condition is the appearance of the

comic vision, since comedy requires sufficient detachment to view some deviations from social norms as ridiculous rather than as serious threats to the welfare of the entire group. Another condition that contributes to the development of autonomous theater is the emergence of the aesthetic sense. For example, some early societies ceased to consider certain rites essential to their well-being and abandoned them, nevertheless, they retained as parts of their oral tradition the myths that had grown up around the rites and admired them for their artistic qualities rather than for their religious usefulness.

10. The word “penchant” in the passage is closest in meaning to

- compromise
- inclination
- tradition
- respect

11. Why does the author mention “comedy”?

- To give an example of early types of theater
- To explain how theater helps a society respond to threats to its welfare
- To help explain why detachment is needed for the development of theater
- To show how theatrical performers become detached from other members of society

12. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- A society’s rites were more likely to be retained in the oral tradition if its myths were admired for artistic qualities.
- The artistic quality of a myth was sometimes an essential reason for a society to abandon it from the oral tradition.
- Some early societies stopped using myths in their religious practices when rites ceased to be seen as useful for social well-being.
- Myths sometimes survived in a society’s tradition because of their artistic qualities even after they were no longer deemed religiously beneficial.

Paragraph 3: ■Although origin in ritual has long been the most popular, it is by no means the only theory about how the theater came into being. ■Storytelling has been proposed as one alternative. ■Under this theory, relating and listening to stories are seen as fundamental human pleasures. ■Thus, the recalling of an event (a hunt, battle, or other feat) is elaborated through the narrator’s pantomime and impersonation and eventually through each role being assumed by a different person.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

To enhance their listeners’ enjoyment, storytellers continually make their stories more engaging and memorable.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Anthropologists have developed many theories to help understand why and how theater originated.

●

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- -

Answer choices

- The presence of theater in almost all societies is thought to have occurred because early storytellers traveled to different groups to tell their stories.
- Many theorists believe that theater arises when societies act out myths to preserve social well-being.
- The more sophisticated societies became, the better they could influence desirable occurrences through ritualized theater.
- Some theories of theater development focus on how theater was used by group leaders to group leaders govern other members of society.
- Theater may have come from pleasure humans receive from storytelling and moving rhythmically.
- The human capacities for imitation and fantasy are considered possible reasons why societies develop theater.

参考答案:

1. ○4
2. ○1
3. ○1
4. ○4
5. ○3
6. ○3
7. ○2
8. ○4
9. ○1
10. ○2
11. ○3
12. ○4
13. ○4
14. Many theorists believe that...
 - Theater may have come from...
 - The human capacities for imitation...

戏剧的起源

由于几乎没有具体材料可供研究，探寻戏剧的起源只能凭推测。19 世纪末 20 世纪初为人类学家们所拥护的一种理论得到了世人的广泛认同；这种观点认为戏剧起源于神话和宗教仪式，这些人类学家们推论过程可简要概括如下：在社会发展早期，人们相信有股力量可以影响甚至操控他们的食物供应和幸福生活。在对自然原因并不十分了解的情况下，他们把希望或不惜希望发生的事情都归咎于超自然的或魔幻的力量，并且试图寻找各种途径赢得这些力量的厚爱。当他们意识到自己的某些行为和期许的结果之间存在明显的联系以后，人们便开始重复并且完善这些行为，最终形成固定的典礼或宗教仪式。

故事（神话）在这种仪式中发展起来，这些故事中经常会有仪式庆祝或期望影响的超自然力量的典型。在这种仪式或伴随的庆典中，表演者们可能会穿上戏装和面具来扮演神秘的角色或超自然力量。当人们认识事物的能力进一步加强的时候，他们对超自然力量以及与其引发的事件间因果关系的认识就发生了改变；于是，他们会抛弃或者修改某些仪式。不过在这些仪式中发展起来的神话故事继续在人们的口头流传，甚至可能脱离了仪式而被演绎着。这时候，戏剧作为一种自发的活动迈出了自己的第一步，接着，戏剧的娱乐和审美价值开始渐渐取代先前的带有神话色彩的、在社会上灵验的关注。

尽管戏剧起源于宗教仪式的说法是目前最被大众认可的，但无论如何这都不是戏剧起源的唯一理论；另一种推测认为戏剧源于说书。在这个理论中，与故事产生联系和聆听故事被视为是人类基本的乐趣。因此，讲述人通过自己的手势和模仿把对一个事件的回忆（一次打猎、战役或是其它功勋伟业）表现的淋漓尽致，这种方式最终演变成为由不同的人来演绎不同的角色。

另外一种与之相关的理论认为，戏剧主要是从无声的、有节奏的舞蹈、体操，或模仿动物声音的过程逐渐演变而来。人们对表演者的演技、审美能力和优雅的欣赏被视为是表演者将他们的表演精心策划为戏剧的动力。

为了进一步探寻戏剧的起源，一些学派开始从人类发展戏剧的动机上建立理论。为什么戏剧会发展，为什么在戏剧完全脱离宗教仪式以后还有这么大的价值？大部分答案都回到那些关于人类心智和人类基本需求的理论中。首先，亚里士多德在公元前 4 世纪提出，人们天生好模仿，并从模仿他人、事物和动作以及观看模仿中获得乐趣。另外，20 世纪提出的先进理论认为人类擅长幻想，通过幻想将日常生活中的现实重塑成更加令人满意的形式。因此，人们通过幻想或虚构（戏剧的一个形式）把他们的焦虑和恐惧具体化，再通过这种方式面对焦虑和恐惧，并从虚构中满足他们现实中无法实现的愿望。所以，戏剧成为了一种帮助人们认识和理解这个世界，或是帮助人们逃避不满现实的工具。

但是，无论是人类模仿的本能或是对幻想的嗜好本身都不能发展成为独立的戏剧，因此，我们需要更多解释。一个必要的条件可能是一种要脱离通常人们看待问题的视角。比如，这个条件的一个标志是喜剧构想的出现，因为喜剧要求足够的发散思维，我们需要将社会规范中的离经叛道的行为视作极其荒谬的事情，而不是对公众群体福利的严重威胁。另一个导致戏剧独立的条件是审美感觉的出现。例如，一些早期社会的人们认为有的仪式对他们的幸福生活来说不再是必需品，并且取消了那些仪式。虽然如此，人们还是保留了那些口头传述故事的 tradition 并且热爱从这些仪式里发展起来的神话，出于它们的艺术性，而不是宗教原因。

Timberline Vegetation on Mountains

The transition from forest to treeless tundra on a mountain slope is often a dramatic one. Within a vertical distance of just a few tens of meters, trees disappear as a life-form and are replaced by low shrubs, herbs, and grasses. This rapid zone of transition is called the upper timberline or tree line. In many semiarid areas there is also a lower timberline where the forest passes into steppe or desert at its lower edge, usually because of a lack of moisture.

The upper timberline, like the snow line, is highest in the tropics and lowest in the Polar Regions. It ranges from sea level in the Polar Regions to 4,500 meters in the dry subtropics and 3,500-4,500 meters in the moist tropics. Timberline trees are normally evergreens, suggesting that these have some advantage over deciduous trees (those that lose their leaves) in the extreme environments of the upper timberline. There are some areas, however, where broadleaf deciduous trees form the timberline. Species of birch, for example, may occur at the timberline in parts of the Himalayas.

At the upper timberline the trees begin to become twisted and deformed. This is particularly true for trees in the middle and upper latitudes, which tend to attain greater heights on ridges, whereas in the tropics the trees reach their greater heights in the valleys. This is because middle- and upper- latitude timberlines are strongly influenced by the duration and depth of the snow cover. As the snow is deeper and lasts longer in the valleys, trees tend to attain greater heights on the ridges, even though they are more exposed to high-velocity winds and poor, thin soils there. In the tropics, the valleys appear to be more favorable because they are less prone to dry out, they have less frost, and they have deeper soils.

There is still no universally agreed-on explanation for why there should be such a dramatic cessation of tree growth at the upper timberline. Various environmental factors may play a role. Too much snow, for example, can smother trees, and avalanches and snow creep can damage or destroy them. Late-lying snow reduces the effective growing season to the point where seedlings cannot establish themselves. Wind velocity also increases with altitude and may cause serious stress for trees, as is made evident by the deformed shapes at high altitudes. Some scientists have proposed that the presence of increasing levels of ultraviolet light with elevation may play a role, while browsing and grazing animals like the ibex may be another contributing factor. Probably the most important environmental factor is temperature, for if the growing season is too short and temperatures are too low, tree shoots and buds cannot mature sufficiently to survive the winter months.

Above the tree line there is a zone that is generally called alpine tundra. Immediately adjacent to the timberline, the tundra consists of a fairly complete cover of low-lying shrubs, herbs, and grasses, while higher up the number and diversity of species decrease until there is much bare ground with occasional mosses and lichens and some prostrate cushion plants. Some plants can even survive in favorable microhabitats above the snow line. The highest plants in the world occur at around 6,100 meters on Makalu in the Himalayas. At this great height, rocks, warmed by the sun, melt small snowdrifts.

The most striking characteristic of the plants of the alpine zone is their low growth form. This enables them to avoid the worst rigors of high winds and permits them to make use of the higher temperatures immediately adjacent to the ground surface. In an area where low temperatures are limiting to life, the importance of the additional heat near the surface is crucial. The low growth form can also permit the plants to take advantage of the insulation provided by a winter snow cover. In the equatorial mountains the low growth form is less prevalent.

Paragraph 1: The transition from forest to treeless tundra on a mountain slope is often a dramatic one. Within a vertical distance of just a few tens of meters, trees disappear as a life-form and are replaced by low shrubs, herbs, and grasses. This rapid zone of transition is called the upper timberline or tree line. In many semiarid areas there is also a lower timberline where the forest passes into steppe or desert at its lower edge, usually because of a lack of moisture.

1. The word "dramatic" in the passage is closest in meaning to
 - gradual
 - complex
 - visible
 - striking
2. Where is the lower timberline mentioned in paragraph 1 likely to be found?
 - In an area that has little water
 - In an area that has little sunlight
 - Above a transition area
 - On a mountain that has on upper timberline.
3. Which of the following can be inferred from paragraph 1 about both the upper and lower timberlines?
 - Both are treeless zones.
 - Both mark forest boundaries.
 - Both are surrounded by desert areas.
 - Both suffer from a lack of moisture.

Paragraph 2: The upper timberline, like the snow line, is highest in the tropics and lowest in the Polar Regions. It ranges from sea level in the Polar Regions to 4,500 meters in the dry subtropics and 3,500-4,500 meters in the moist tropics. Timberline trees are normally evergreens, suggesting that these have some advantage over deciduous trees (those that lose their leaves) in the extreme environments of the upper timberline. There are some areas, however, where broadleaf deciduous trees form the timberline. Species of birch, for example, may occur at the timberline in parts of the Himalayas.

4. Paragraph 2 supports which of the following statements about deciduous trees?
 - They cannot grow in cold climates.
 - They do not exist at the upper timberline.
 - They are less likely than evergreens to survive at the upper timberline.
 - They do not require as much moisture as evergreens do.

Paragraph 3: At the upper timberline the trees begin to become twisted and deformed. This is particularly true for trees in the middle and upper latitudes, which tend to attain greater heights on ridges, whereas in the tropics the trees reach their greater heights in the valleys. This is because middle- and upper- latitude timberlines are strongly influenced by the duration and depth of the snow cover. As the snow is deeper and lasts longer in the valleys, trees tend to attain greater heights on the ridges, even though they are more exposed to high-velocity winds and poor, thin soils there. In the tropics, the valleys appear to be more favorable because they are less prone to dry out, they have less frost, and they have deeper soils.

5. The word "attain" in the passage is closest in meaning to

-
- require
 - resist
 - achieve
 - endure

6. The word “they” in the passage refers to

- valleys
- trees
- heights
- ridges

7. The word “prone” in the passage is closest in meaning to

- adapted
- likely
- difficult
- resistant

8. According to paragraph 3, which of the following is true of trees in the middle and upper latitudes?

- Tree growth is negatively affected by the snow cover in valleys.
- Tree growth is greater in valleys than on ridges.
- Tree growth on ridges is not affected by high-velocity winds.
- Tree growth lasts longer in those latitudes than it does in the tropics.

Paragraph 4: There is still no universally agreed-on explanation for why there should be such a dramatic cessation of tree growth at the upper timberline. Various environmental factors may play a role. Too much snow, for example, can smother trees, and avalanches and snow creep can damage or destroy them. Late-lying snow reduces the effective growing season to the point where seedlings cannot establish themselves. Wind velocity also increases with altitude and may cause serious stress for trees, as is made evident by the deformed shapes at high altitudes. Some scientists have proposed that the presence of increasing levels of ultraviolet light with elevation may play a role, while browsing and grazing animals like the ibex may be another contributing factor. Probably the most important environmental factor is temperature, for if the growing season is too short and temperatures are too low, tree shoots and buds cannot mature sufficiently to survive the winter months.

9. Which of the sentences below best express the essential information in the highlighted sentence in the passage? In correct choices change the meaning in important ways or leave out essential information.

- Because of their deformed shapes at high altitudes, trees are not likely to be seriously harmed by the strong winds typical of those altitudes.
- As altitude increases, the velocity of winds increase, leading to a serious decrease in the number of trees found at high altitudes.
- The deformed shapes of trees at high altitudes show that wind velocity, which increase with altitude, can cause serious hardship for trees.
- Increased wind velocity at high altitudes deforms the shapes of trees, and this may cause serious stress for trees.

10. In paragraph 4, what is the author’s main purpose in the discussion of the dramatic cessation of tree growth at the upper timberline?

- To argue that none of several environment factors that are believed to contribute to that phenomenon do in fact play a role in causing it.

- To argue in support of one particular explanation of that phenomenon against several competing explanations
- To explain why the primary environmental factor responsible for that phenomenon has not yet been identified
- To present several environmental factors that may contribute to a satisfactory explanation of that phenomenon

Paragraph 6: The most striking characteristic of the plants of the alpine zone is their low growth form. This enables them to avoid the worst rigors of high winds and permits them to make use of the higher temperatures immediately adjacent to the ground surface. In an area where low temperatures are limiting to life, the importance of the additional heat near the surface is crucial. The low growth form can also permit the plants to take advantage of the insulation provided by a winter snow cover. In the equatorial mountains the low growth form is less prevalent.

11. The word “prevalent” in the passage is closest in meaning to
- predictable
 - widespread
 - successful
 - developed
12. According to paragraph 6, all of the following statements are true of plants in the alpine zone EXCEPT:
- Because they are low, they are less exposed to strong winds.
 - Because they are low, the winter snow cover gives them more protection from the extreme cold.
 - In the equatorial mountains, they tend to be lower than in mountains elsewhere.
 - Their low growth form keeps them closer to the ground, where there is more heat than further up.

Paragraph 5: Above the tree line there is a zone that is generally called alpine tundra. ■Immediately adjacent to the timberline, the tundra consists of a fairly complete cover of low-lying shrubs, herbs, and grasses, while higher up the number and diversity of species decrease until there is much bare ground with occasional mosses and lichens and some prostrate cushion plants. ■Some plants can even survive in favorable microhabitats above the snow line. The highest plants in the world occur at around 6,100 meters on Makalu in the Himalayas. ■At this great height, rocks, warmed by the sun, melt small snowdrifts. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.
This explains how, for example, alpine cushion plants have been found growing at an altitude of 6,180 meters.
 Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

At the timberline, whether upper or lower, there is a profound change in the growth of trees and other plants.

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-
-

Answer choices

- Birch is one of the few species of tree that can survive in the extreme environments of the upper timberline.

○There is no agreement among scientists as to exactly why plant growth is sharply different above and below the upper timberline.

○The temperature at the upper timberline is probably more important in preventing tree growth than factors such as the amount of snowfall or the force of winds.

○The geographical location of an upper timberline has an impact on both the types of trees found there and their physical characteristics.

○High levels of ultraviolet light most likely play a greater role in determining tree growth at the upper timberline than do grazing animals such as the ibex.

○Despite being adjacent to the timberline, the alpine tundra is an area where certain kinds of low trees can endure high winds and very low temperatures.

参考答案:

1. ○4
2. ○1
3. ○2
4. ○3
5. ○3
6. ○2
7. ○2
8. ○1
9. ○3
10. ○4
11. ○2
12. ○3
13. ○4
14. There is no agreement among...
The temperature at the upper ...
The geographical location of...

山上树带界线的植被

通常从山坡上的森林到没有树的苔原是一种非常戏剧化的转变。在一个垂直距离只有几十米的地方，树木这种生命形式就消失了，取而代之的是低矮的灌木、药草和牧草。这种急速转变的区域被称为上行树带界线或林木线。在许多干旱的地区存在着下行树带界线，在这里由于缺乏水分森林变成干草原，甚至在最下端会出现沙漠。

上行树带界线，比如雪线，在热带最高在极地最低。从极地地区的海平面到干燥亚热带海拔 4500 米处以及潮湿热带地区的 3500 米至 4500 米处都有上行树带界线。树带界线内通常是常绿树木，他们和处于上行树带界线处极端恶劣环境中生长的落叶树木相比，具有一定的优势。然而，在部分地区也有由落叶阔叶林组成的树带界线。例如，在喜马拉雅的部分地区，桦树就在树带界线上。

上行树带界线的树木开始扭曲和变形，尤其在中高纬度地区的树木，这些地区的树木往往会在山脊上长得更高，而在热带地区的树木则在山谷里长得更高；因为中高纬度地区树带界线受积雪覆盖时间和深度的影响很大。由于山谷中积雪覆盖较厚且持续时间很长，树木往往在山脊上长得更高，即便是生长在大风和贫瘠的土地里。在热带地区山谷更有利于生长，因为山谷不易干涸、很少结霜，并且备有更深的土壤。

目前还没有一个普遍认同的解释来说明为什么会在树带界线上出现树木停止生长这种戏剧化的现象。多种环境因素都起到作用，例如，积雪过多会让树木透不过气，雪崩和雪移能摧毁树木；长时间积雪缩短了有效生长季节的时间，树苗无法生长；另外，风速会随着海拔的升高而增加，增加树木承受的压力，很明显，正是这种风速带来的压力导致树木在高纬度地区变得畸形。一些科学家提出，随着海拔的上升而不断增强的紫外线、野生山羊等动物的放养，都是导致树带界线形成的因素。或许最重要的环境因素是温度，因为如果生长季节太短并且气温太低，树芽和树苗都无法充分成熟度过冬季。

在林木线上有一个称为高山苔原的地区。由于紧挨着树带界线，苔原上都是矮灌木、药材和草地。随着海拔的增加物种的数量和多样性会逐渐减少，直到出现大量空地伴着零星的苔藓和地衣这样的伏地植物。有些植物甚至可以在雪线以上有利的小环境中生存，世界上海拔最高的植物是出现在喜马拉雅山上六千一百米的马卡鲁峰。在这个高度上，被阳光温暖过的岩石可以将小雪堆融化。

高山植物最突出的特点是其低矮的生长形态。这种特点使他们能够抵御最恶劣的强风环境，并且有助于他们利用来自地表的高温。在这样一个低温限制生命的地区，地表提供的额外温度是至关重要的。低矮的生长形态也可以帮助植物充分利用冬季积雪所提供的保温环境。在赤道区的山脉上低矮的生长形态并不常见。

TPO-3

Architecture

Architecture is the art and science of designing structures that organize and enclose space for practical and symbolic purposes. Because architecture grows out of human needs and aspirations, it clearly communicates cultural values. Of all the visual arts, architecture affects our lives most directly for it determines the character of the human environment in major ways.

Architecture is a three-dimensional form. It utilizes space, mass, texture, line, light, and color. To be architecture, a building must achieve a working harmony with a variety of elements. Humans instinctively seek structures that will shelter and enhance their way of life. It is the work of architects to create buildings that are not simply constructions but also offer inspiration and delight. Buildings contribute to human life when they provide shelter, enrich space, complement their site, suit the climate, and are economically feasible. The client who pays for the building and defines its function is an important member of the architectural team. The mediocre design of many contemporary buildings can be traced to both clients and architects.

In order for the structure to achieve the size and strength necessary to meet its purpose, architecture employs methods of support that, because they are based on physical laws, have changed little since people first discovered them—even while building materials have changed dramatically. The world's architectural structures have also been devised in relation to the objective limitations of materials. Structures can be analyzed in terms of how they deal with downward forces created by gravity. They are designed to withstand the forces of compression (pushing together), tension (pulling apart), bending, or a combination of these in different parts of the structure.

Even development in architecture has been the result of major technological changes. Materials and methods of construction are integral parts of the design of architecture structures. In earlier times it was necessary to design structural systems suitable for the materials that were available, such as wood, stone, brick. Today technology has progressed to the point where it is possible to invent new building materials to suit the type of structure desired. Enormous changes in materials and techniques of construction within the last few generations have made it possible to enclose space with much greater ease and speed and with a minimum of material. Progress in this area can be measured by the difference in weight between buildings built now and those of comparable size built one hundred years ago.

Modern architectural forms generally have three separate components comparable to elements of the human body: a supporting skeleton or frame, an outer skin enclosing the interior spaces, and equipment, similar to the body's vital organs and systems. The equipment includes plumbing, electrical wiring, hot water, and air-conditioning. Of course in early architecture—such as igloos and adobe structures—there was no such equipment, and the skeleton and skin were often one.

Much of the world's great architecture has been constructed of stone because of its beauty, permanence, and availability. In the past, whole cities grew from the arduous task of cutting and piling stone upon. Some of the world's finest stone architecture can be seen in the ruins of the ancient Inca city of Machu Picchu high in the eastern Andes Mountains of Peru. The doorways and windows are made possible by placing over the open spaces thick stone beams that support the weight from above. A structural invention had to be made before the physical limitations of stone could be overcome and new architectural forms could be created. That invention was the arch,

a curved structure originally made of separate stone or brick segments. The arch was used by the early cultures of the Mediterranean area chiefly for underground drains, but it was the Romans who first developed and used the arch extensively in aboveground structures. Roman builders perfected the semicircular arch made of separate blocks of stone. As a method of spanning space, the arch can support greater weight than a horizontal beam. It works in compression to divert the weight above it out to the sides, where the weight is borne by the vertical elements on either side of the arch. The arch is among the many important structural breakthroughs that have characterized architecture throughout the centuries.

Paragraph 1: Architecture is the art and science of designing structures that organize and enclose space for practical and symbolic purposes. Because architecture grows out of human needs and aspirations, it clearly communicates cultural values. Of all the visual arts, architecture affects our lives most directly for it determines the character of the human environment in major ways.

1. According to paragraph 1, all of the following statements about architecture are true EXCEPT:

- Architecture is visual art.
- Architecture reflects the cultural values of its creators.
- Architecture has both artistic and scientific dimensions.
- Architecture has an indirect effect on life.

Paragraph 2: Architecture is a three-dimensional form. It utilizes space, mass, texture, line, light, and color. To be architecture, a building must achieve a working harmony with a variety of elements. Humans instinctively seek structures that will shelter and **enhance** their way of life. It is the work of architects to create buildings that are not simply constructions but also offer inspiration and delight. Buildings contribute to human life when they provide shelter, enrich space, complement their site, suit the climate, and are economically **feasible**. The client who pays for the building and defines its function is an important member of the architectural team. The mediocre design of many contemporary buildings can be traced to both clients and architects.

2. The word “**feasible**” in the passage is closest in meaning to

- in existence
- without question
- achievable
- most likely

3. The word “**enhance**” in the passage is closest in meaning to

- protect
- improve
- organize
- match

Paragraph 3: **In order for the structure to achieve the size and strength necessary to meet its purpose, architecture employs methods of support that, because they are based on physical laws, have changed little since people first discovered them—even while building materials have changed dramatically.** The world’s architectural structures have also been **devised** in relation to the objective limitations of materials. Structures can be analyzed in terms of how they deal with downward forces created by gravity. They are designed to withstand the forces of compression (pushing together), tension (pulling apart), bending, or a combination of these in different parts of the structure.

4. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Unchanging physical laws have limited the size and strength of buildings that can be made with materials discovered long ago.
- Building materials have changed in order to increase architectural size and strength, but physical laws of structure have not changed.
- When people first started to build, the structural methods used to provide strength and size were inadequate because they were not based on physical laws.
- Unlike building materials, the methods of support used in architecture have not changed over time because they are based on physical laws.

5. The word “devised” in the passage is closest in meaning to

- combined
- created
- introduced
- suggested

Paragraph 4: Even development in architecture has been the result of major technological changes. Materials and methods of construction are integral parts of the design of architecture structures. In earlier times it was necessary to design structural systems suitable for the materials that were available, such as wood, stone, brick. Today technology has progressed to the point where it is possible to invent new building materials to suit the type of structure desired. Enormous changes in materials and techniques of construction within the last few generations have made it possible to enclose space with much greater ease and speed and with a minimum of material. Progress in this area can be measured by the difference in weight between buildings built now and those of comparable size built one hundred years ago.

6. The word “integral” is closest in meaning to

- essential
- variable
- practical
- independent

7. According to paragraph 4, which of the following is true about materials used in the construction of buildings?

- Because new building materials are hard to find, construction techniques have changed very little from past generations.
- The availability of suitable building materials no longer limits the types of structures that may be built.
- The primary building materials that are available today are wood, stone, and brick.
- Architects in earlier times did not have enough building materials to enclose large spaces.

8. In paragraph 4, what does the author imply about modern buildings?

- They occupy much less space than buildings constructed one hundred years ago.
- They are not very different from the building of a few generations ago.
- They weigh less in relation to their size than buildings constructed one hundred years ago.
- They take a long time to build as a result of their complex construction methods.

Paragraph 5: Modern architectural forms generally have three separate components comparable to elements of the human body: a supporting skeleton or frame, an outer skin enclosing the interior spaces, and equipment,

similar to the body's vital organs and systems. The equipment includes plumbing, electrical wiring, hot water, and air-conditioning. Of course in early architecture—such as igloos and adobe structures—there was no such equipment, and the skeleton and skin were often one.

9. Which of the following correctly characterizes the relationship between the human body and architecture that is described in paragraph 5?

- Complex equipment inside buildings is the one element in modern architecture that resembles a component of the human body.
- The components in early buildings were similar to three particular elements of the human body.
- Modern buildings have components that are as likely to change as the human body is.
- In general, modern buildings more closely resemble the human body than earlier buildings do.

Paragraph 6: Much of the world's great architecture has been constructed of stone because of its beauty, permanence, and availability. In the past, whole cities grew from the arduous task of cutting and piling stone upon. Some of the world's finest stone architecture can be seen in the ruins of the ancient Inca city of Machu Picchu high in the eastern Andes Mountains of Peru. The doorways and windows are made possible by placing over the open spaces thick stone beams that support the weight from above. A structural invention had to be made before the physical limitations of stone could be overcome and new architectural forms could be created. That invention was the arch, a curved structure originally made of separate stone or brick segments. The arch was used by the early cultures of the Mediterranean area chiefly for underground drains, but it was the Romans who first developed and used the arch extensively in aboveground structures. Roman builders perfected the semicircular arch made of separate blocks of stone. As a method of spanning space, the arch can support greater weight than a horizontal beam. It works in compression to divert the weight above it out to the sides, where the weight is borne by the vertical elements on either side of the arch. The arch is among the many important structural breakthroughs that have characterized architecture throughout the centuries.

10. The word "arduous" in the passage is closest in meaning to

- difficult
- necessary
- skilled
- shared

11. Why does the author include a description of how the "doorways and windows" of Machu Picchu were constructed?

- To indicate that the combined skeletons and skins of the stone buildings of Machu Picchu were similar to igloos and adobe structures
- To indicate the different kinds of stones that had to be cut to build Machu Picchu
- To provide an illustration of the kind of construction that was required before arches were invented
- To explain how ancient builders reduced the amount of time necessary to construct buildings from stone

12. According to paragraph 6, which of the following statements is true of the arch?

- The Romans were the first people to use the stone arch.
- The invention of the arch allowed new architectural forms to be developed.
- The arch worked by distributing the structural load of a building toward the center of the arch.
- The Romans followed earlier practices in their use of arches.

Paragraph 5: ■ Modern architectural forms generally have three separate components comparable to elements of the human body; a supporting skeleton or frame, an outer skin enclosing the interior spaces, and

equipment, similar to the body's vital organs and systems. ■ The equipment includes plumbing, electrical wiring, hot water, and air-conditioning. ■ Of course in early architecture—such as igloos and adobe structures—there was no such equipment, and the skeleton and skin were often one. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

However, some modern architectural designs, such as those using folded plates of concrete or air-inflated structures, are again unifying skeleton and skin.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Architecture uses forms and space to express cultural values.

-
-
-

Answer choices

- Architects seek to create buildings that are both visually appealing and well suited for human use.
- Over the course of the history of building, innovations in material and methods of construction have given architects ever greater freedom to express themselves.
- Throughout history buildings have been constructed like human bodies, needing distinct “organ” systems in order to function.
- Both clients and architects are responsible for the mediocre designs of some modern buildings.
- Modern buildings tend to lack the beauty of ancient stone buildings such as those of Machu Picchu.
- The discovery and use of the arch typifies the way in which architecture advances by developing more efficient types of structures.

参考答案:

1. ○ 4

2. ○ 3

3. ○ 2

4. ○ 4

5. ○ 2

6. ○ 1

7. ○ 2

8. ○ 3

9. ○ 4

10. ○ 1

11. ○ 3

12. ○ 2

13. ○ 4

14. Architects seek to create...

Over the course of the...

The discovery and use of...

建筑

建筑是一门设计结构的艺术和科学，出于实用或象征的目的用结构来组织和包围空间。因为建筑源于人类的需求和愿望，同样也可以清楚地传达文化价值。在所有的视觉艺术中，建筑最直接地影响了我们的生活，因为它在很多方面决定了我们生存的环境特征。

建筑是一种利用空间、质量、纹理、线条、光线和颜色的三维立体形式。一幢建筑物必须实现各种要素的和谐搭配。人类本能地希望可以提供居住并且改善他们生活质量的建筑。建筑师们的创造出来的建筑物不单纯的是建筑物，还为人们带来了灵感和喜悦。建筑物为人类的生活提供了遮蔽处和丰富的空间、增加人们的活动场所、完善人们的居所、帮助人们适应气候的变化，同时在经济上也承受。建筑团队中，最重要的是那些为建筑支付建设费用并且设计其职能的人，许多当代建筑平庸的根源在于他们和建筑师。

建筑结构必须达到大小和强度的要求，以实现必要的建筑目的，因此建筑学上采用一些支撑的方法，这些方法都是以物理定律为基础的，尽管建筑材料已经发生了翻天覆地的变化，这些支撑的方法却自人们发现它们以来就鲜有变化。世界的建筑结构也因为克服材料限制的目的而发展起来。建筑师们在设计建筑结构的时候需要将重力对材料的影响考虑在内，通过结构设计使建筑不同部分能抵抗压力、拉力、弯曲力或混合的压力。

甚至建筑的发展也是由重大的技术变革造成的。材料和建设方法是建筑结构设计整体的组成部分。早期，人们必须设计结构系统来配合当前可用的材料，如木头、石头和砖。现今的技术已经发展到能够创造新的建筑材料来适应想要应用的建筑结构。近几代建筑材料和科技的巨大变化使得包围空间更加简单、快速，并且用更少的材料。在这一领域的进步可以用现在修建的建筑和 **100** 年前建造的同规模建筑之间的重量差异来衡量。

类似人类的身体结构，现代建筑可以划分为三个独立的部分：支撑骨架或框架、覆盖内部空间的外壳以及像人体内器官一样重要的设施。这些设施包括管道、电线、热水和空调。当然，在早期的圆顶建筑和土坯建筑中并没有这样的设施，皮肤和骨骼也往往是合在一起的。

世界上大多数伟大的建筑都是石料建筑，因为石料建筑不仅外形漂亮、持久耐用，而且石头随处可得。在过去，整个城市的建筑物都是从艰苦的石块切割和堆砌发展起来的。在秘鲁安第斯山脉东部的马丘比丘印加古城遗址，可以看到世界上最棒的石质建筑。在开阔的空间上放置厚石板来支撑上面的石头，使门和窗的修建成为可能。设计师们必须在克服石头的物理限制以及新建筑形式发展之前发明出建筑结构，这就是拱形结构，即最初由分段的石头或砖块构成的弧形结构。拱最初在地中海早期文化中用来建设地下水渠，但古罗马人最先开发和广泛的利用它作为地上建筑的结构，他们完善了由分段的石块组成的半圆形拱。作为跨越空间的一种方式，拱可以比水平横梁支撑更大的重量。它使得其上的压力转移到两侧，由两侧垂直的部分来承担压力。而拱只是近百年来众多重要建筑结构的突破之一。

Depletion of the Ogallala Aquifer

The vast grasslands of the High Plains in the central United States were settled by farmers and ranchers in the 1880s. This region has a semiarid climate, and for 50 years after its settlement, it supported a low-intensity agricultural economy of cattle ranching and wheat farming. In the early twentieth century, however, it was discovered that much of the High Plains was underlain by a huge aquifer (a rock layer containing large quantities of groundwater). This aquifer was named the Ogallala aquifer after the Ogallala Sioux Indians, who once inhabited the region.

The Ogallala aquifer is a sandstone formation that underlies some 583,000 square kilometers of land extending from northwestern Texas to southern South Dakota. Water from rains and melting snows has been accumulating in the Ogallala for the past 30,000 years. Estimates indicate that the aquifer contains enough water to fill Lake Huron, but unfortunately, under the semiarid climatic conditions that presently exist in the region, rates of addition to the aquifer are minimal, amounting to about half a centimeter a year.

The first wells were drilled into the Ogallala during the drought years of the early 1930s. The ensuing rapid expansion of irrigation agriculture, especially from the 1950s onward, transformed the economy of the region. More than 100,000 wells now tap the Ogallala. Modern irrigation devices, each capable of spraying 4.5 million liters of water a day, have produced a landscape dominated by geometric patterns of circular green islands of crops. Ogallala water has enabled the High Plains region to supply significant amounts of the cotton, sorghum, wheat, and corn grown in the United States. In addition, 40 percent of American grain-fed beef cattle are fattened here.

This unprecedented development of a finite groundwater resource with an almost negligible natural recharge rate—that is, virtually no natural water source to replenish the water supply—has caused water tables in the region to fall drastically. In the 1930s, wells encountered plentiful water at a depth of about 15 meters; currently, they must be dug to depths of 45 to 60 meters or more. In places, the water table is declining at a rate of a meter a year, necessitating the periodic deepening of wells and the use of ever-more-powerful pumps. It is estimated that at current withdrawal rates, much of the aquifer will run dry within 40 years. The situation is most critical in Texas, where the climate is driest, the greatest amount of water is being pumped, and the aquifer contains the least water. It is projected that the remaining Ogallala water will, by the year 2030, support only 35 to 40 percent of the irrigated acreage in Texas that is supported in 1980.

The reaction of farmers to the inevitable depletion of the Ogallala varies. Many have been attempting to conserve water by irrigating less frequently or by switching to crops that require less water. Others, however, have adopted the philosophy that it is best to use the water while it is still economically profitable to do so and to concentrate on high-value crops such as cotton. The incentive of the farmers who wish to conserve water is reduced by their knowledge that many of their neighbors are profiting by using great amounts of water, and in the process are drawing down the entire region's water supplies.

In the face of the upcoming water supply crisis, a number of grandiose schemes have been developed to transport vast quantities of water by canal or pipeline from the Mississippi, the Missouri, or the Arkansas rivers. Unfortunately, the cost of water obtained through any of these schemes would increase pumping costs at least tenfold, making the cost of irrigated agricultural products from the region uncompetitive on the national and international markets. Somewhat more promising have been recent experiments for releasing capillary water (water in the soil) above the water table by injecting compressed air into the ground. Even if this process proves

successful, however, it would almost triple water costs. Genetic engineering also may provide a partial solution, as new strains of drought-resistant crops continue to be developed. Whatever the final answer to the water crisis may be, it is evident that within the High Plains, irrigation water will never again be the abundant, inexpensive resource it was during the agricultural boom years of the mid-twentieth century.

Paragraph 1: The vast grasslands of the High Plains in the central United States were settled by farmers and ranchers in the 1880s. This region has a semiarid climate, and for 50 years after its settlement, it supported a low-intensity agricultural economy of cattle ranching and wheat farming. In the early twentieth century, however, it was discovered that much of the High Plains was underlain by a huge aquifer (a rock layer containing large quantities of groundwater). This aquifer was named the Ogallala aquifer after the Ogallala Sioux Indians, who once inhabited the region.

1. According to paragraph 1, which of the following statements about the High Plains is true?
 - Until farmers and ranchers settled there in the 1880s, the High Plains had never been inhabited.
 - The climate of the High Plains is characterized by higher-than-average temperatures.
 - The large aquifer that lies underneath the High Plains was discovered by the Ogallala Sioux Indians.
 - Before the early 1900s there was only a small amount of farming and ranching in the High Plains.

Paragraph 2: The Ogallala aquifer is a sandstone formation that underlies some 583,000 square kilometers of land extending from northwestern Texas to southern South Dakota. Water from rains and melting snows has been accumulating in the Ogallala for the past 30,000 years. Estimates indicate that the aquifer contains enough water to fill Lake Huron, but unfortunately, under the semiarid climatic conditions that presently exist in the region, rates of addition to the aquifer are minimal, amounting to about half a centimeter a year.

2. According to paragraph 2, all of the following statements about the Ogallala aquifer are true EXCEPT:
 - The aquifer stretches from South Dakota to Texas.
 - The aquifer's water comes from underground springs.
 - Water has been gathering in the aquifer for 30,000 years.
 - The aquifer's water is stored in a layer of sandstone.
3. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
 - Despite the current impressive size of the Ogallala aquifer, the region's climate keeps the rates of water addition very small.
 - Although the aquifer has been adding water at the rate of only half a centimeter a year, it will eventually accumulate enough water to fill Lake Huron.
 - Because of the region's present climatic conditions, water is being added each year to the aquifer.
 - Even when the region experiences unfortunate climatic conditions, the rates of addition of water continue to increase.

Paragraph 3: The first wells were drilled into the Ogallala during the drought years of the early 1930s. The ensuing rapid expansion of irrigation agriculture, especially from the 1950s onward, transformed the economy of the region. More than 100,000 wells now tap the Ogallala. Modern irrigation devices, each capable of spraying 4.5 million liters of water a day, have produced a landscape dominated by geometric patterns of circular green islands of crops. Ogallala water has enabled the High Plains region to supply significant amounts of the cotton, sorghum, wheat, and corn grown in the United States. In addition, 40 percent of American grain-fed beef cattle are fattened here.

4. The word “ensuing” in the passage is closest in meaning to

- continuing
- surprising
- initial
- subsequent

5. In paragraph 3, why does the author provide the information that 40 percent of American cattle are fattened in the High Plains?

- To suggest that crop cultivation is not the most important part of the economy of the High Plains
- To indicate that not all economic activity in the High Plains is dependent on irrigation
- To provide another example of how water from the Ogallala has transformed the economy of the High Plains
- To contrast cattle-fattening practices in the High Plains with those used in other region of the United States

Paragraph 4: This unprecedented development of a finite groundwater resource with an almost negligible natural recharge rate—that is, virtually no natural water source to replenish the water supply—has caused water tables in the region to fall drastically. In the 1930s, wells encountered plentiful water at a depth of about 15 meters; currently, they must be dug to depths of 45 to 60 meters or more. In places, the water table is declining at a rate of a meter a year, necessitating the periodic deepening of wells and the use of ever-more-powerful pumps. It is estimated that at current withdrawal rates, much of the aquifer will run dry within 40 years. The situation is most critical in Texas, where the climate is driest, the greatest amount of water is being pumped, and the aquifer contains the least water. It is projected that the remaining Ogallala water will, by the year 2030, support only 35 to 40 percent of the irrigated acreage in Texas that is supported in 1980.

6. The word “unprecedented” in the passage is closest in meaning to

- difficult to control
- without any restriction
- unlike anything in the past
- rapidly expanding

7. The word “virtually” in the passage is closest in meaning to

- clearly
- perhaps
- frequently
- almost

8. According to paragraph 4, all of following are consequences of the heavy use of the Ogallala aquifer for irrigation EXCEPT:

- The recharge rate of the aquifer is decreasing.
- Water tables in the region are becoming increasingly lower.
- Wells now have to be dug to much greater depths than before.
- Increasingly powerful pumps are needed to draw water from the aquifer.

9. According to paragraph 4, compared with all other states that use Ogallala water for irrigation, Texas

- has the greatest amount of farmland being irrigated with Ogallala water
- contains the largest amount of Ogallala water underneath the soil

-
- is expected to face the worst water supply crisis as the Ogallala runs dry
 - uses the least amount of Ogallala water for its irrigation needs

Paragraph 5: The reaction of farmers to the inevitable depletion of the Ogallala varies. Many have been attempting to conserve water by irrigating less frequently or by switching to crops that require less water. Others, however, have adopted the philosophy that it is best to use the water while it is still economically profitable to do so and to concentrate on high-value crops such as cotton. The incentive of the farmers who wish to conserve water is reduced by their knowledge that many of their neighbors are profiting by using great amounts of water, and in the process are drawing down the entire region's water supplies.

10. The word "inevitable" in the passage is closest in meaning to

- unfortunate
- predictable
- unavoidable
- final

11. Paragraph 5 mentions which of the following as a source of difficulty for some farmers who try to conserve water?

- Crops that do not need much water are difficult to grow in the High Plains.
- Farmers who grow crops that need a lot of water make higher profits.
- Irrigating less frequently often leads to crop failure.
- Few farmers are convinced that the aquifer will eventually run dry.

Paragraph 6: In the face of the upcoming water supply crisis, a number of grandiose schemes have been developed to transport vast quantities of water by canal or pipeline from the Mississippi, the Missouri, or the Arkansas rivers. Unfortunately, the cost of water obtained through any of these schemes would increase pumping costs at least tenfold, making the cost of irrigated agricultural products from the region uncompetitive on the national and international markets. Somewhat more promising have been recent experiments for releasing capillary water (water in the soil) above the water table by injecting compressed air into the ground. Even if this process proves successful, however, it would almost triple water costs. Genetic engineering also may provide a partial solution, as new strains of drought-resistant crops continue to be developed. Whatever the final answer to the water crisis may be, it is evident that within the High Plains, irrigation water will never again be the abundant, inexpensive resource it was during the agricultural boom years of the mid-twentieth century.

12. According to paragraph 6, what is the main disadvantage of the proposed plans to transport river water to the High Plains?

- The rivers cannot supply sufficient water for the farmer's needs.
- Increased irrigation costs would make the products too expensive.
- The costs of using capillary water for irrigation will increase.
- Farmers will be forced to switch to genetically engineered crops.

Paragraph 5: The reaction of farmers to the inevitable depletion of the Ogallala varies. Many have been attempting to conserve water by irrigating less frequently or by switching to crops that require less water. ■ Others, however, have adopted the philosophy that it is best to use the water while it is still economically profitable to do so and to concentrate on high-value crops such as cotton. ■ The incentive of the farmers who wish to conserve water is reduced by their knowledge that many of their neighbors are profiting by using great amounts of water, and in the process are drawing down the entire region's water supplies. ■

Paragraph 6: In the face of the upcoming water supply crisis, a number of grandiose schemes have been

developed to transport vast quantities of water by canal or pipeline from the Mississippi, the Missouri, or the Arkansas rivers. ■ Unfortunately, the cost of water obtained through any of these schemes would increase pumping costs at least tenfold, making the cost of irrigated agricultural products from the region uncompetitive on the national and international markets. Somewhat more promising have been recent experiments for releasing capillary water (water in the soil) above the water table by injecting compressed air into the ground. Even if this process proves successful, however, it would almost triple water costs. Genetic engineering also may provide a partial solution, as new strains of drought-resistant crops continue to be developed. Whatever the final answer to the water crisis may be, it is evident that within the High Plains, irrigation water will never again be the abundant, inexpensive resource it was during the agricultural boom years of the mid-twentieth century.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

But even if uncooperative farmers were to join in the conservation efforts, this would only delay the depletion of the aquifer.

Where would the sentence best fit? Click on a square to add the sentence to the passage.

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

The Ogallala aquifer is a large underground source of water in the High Plains region of the United States.

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Answer choices

- The use of the Ogallala for irrigation has allowed the High Plains to become one of the most productive agricultural regions in the United States.
- Given the aquifer's low recharge rate, its use for irrigation is causing water tables to drop and will eventually lead to its depletion.
- Releasing capillary water and introducing drought-resistant crops are less-promising solutions to the water supply crisis than bringing in river water
- The periodic deepening of wells and the use of more-powerful pumps would help increase the natural recharge rate of the Ogallala.
- In Texas, a great deal of attention is being paid to genetic engineering because it is there that the most critical situation exists.
- Several solutions to the upcoming water supply crisis have been proposed, but none of them promises to keep the costs of irrigation low.

参考答案:

1. ○4

2. ○2

3. ○1

4. ○4

5. ○3

6. ○3

7. ○4

8. ○1

9. ○3

10. ○3

11. ○2

12. ○2

13. ○3

14. The use of the Ogallala for...

Given the aquifer's low recharge...

Several solutions to the upcoming...

奥加拉拉蓄水层的枯竭

19 世纪 80 年代，在美国中部北美大平原的广阔草原上定居着农民和农场主们。这里有着半干旱的气候，在人们定居 50 年后，它支撑了一个以畜牧业和小麦种植为主的低密度农业经济。然而，在 20 世纪初，人们发现北美大平原的大部下面是巨大的蓄水池（含有大量地下水的岩层）。这个蓄水池因曾经在这里定居过的奥加拉拉苏族印第安人而得名，被称作奥加拉拉蓄水池。

奥加拉拉蓄水池属于砂岩结构，在从德克萨斯州西北到南达科塔州的地下绵延了 583000 平方公里。雨水和融雪自 30000 年前便开始在奥加拉拉蓄积。据估计，奥加拉拉蓄水池的含水量足以填满休伦湖，但不幸的是，在目前该地区半干旱的气候条件下，奥加拉拉蓄水池的蓄水能力极低，每年仅半厘米左右。

20 世纪 30 年代初，奥加拉拉正处于干旱时期，人们打出了第一口井。灌溉农业的迅速扩张，特别是 20 世纪 50 年代之后，改变了这一地区的经济。目前人们已经在奥加拉拉地区共开凿了 100000 多口井。日喷水量达到 4500000 升的现代灌溉设备，形成了一个圆形绿岛作物为主的景观。奥加拉拉蓄水池支撑了北美大平原地区美国棉花、高粱、小麦、玉米的灌溉需求。此外，美国百分之四十谷饲养的肉牛在这里被育肥。

考虑到几乎没有补充率（实质上没有自然资源进行补充），这种有限地下水资源前所未有的发展已经引起了该地区地下水位的急剧下降。在 20 世纪 30 年代，井下 15 米就有丰富的水资源，而现在，必须挖掘到 45 米到 60 米甚至更深的地方才行。有的地方地下水位的下降速度甚至达到了每年 1 米，迫使人们周期性的加深水井并使用更有力度的水泵。按现今的下降速度来估计，大部分地下蓄水将在 40 年内耗尽。这种现象在气候最干旱的德克萨斯州尤为严重。大量的水被从地下抽起，蓄水池含水量最少。据估计，到 2030 年，德克萨斯州余下的奥加拉拉含水只能支持 1980 年灌溉面积的 35% 到 40%。

农民们对无法避免的奥加拉拉蓄水池枯竭的反应各不相同。很多人已经开始尝试通过降低灌溉频率或者改种需水较少的庄稼来节约水资源。而另外一些人却抱着趁水资源还能产生经济效益就应抓紧利用的想法，继续种植高价值的棉花等农作物。当那些想节水的农民得知邻居们通过大量耗水的种植而盈利的时候，他们的热情降低了，从而导致了整个区域的供水量的减少。

在即将到来的水资源供应危机面前，人们提出了一些宏伟的供水计划，比如将密西西比河、密苏里河或者阿肯色河的水通过运河或管道运到需要用水的地方。不幸的是，通过以上任何一种方式获得水资源都会将抽水的成本提高十倍以上，进而导致这一地区的灌溉农产品成本在国内和国际市场上都毫无竞争力。最近一些有希望获得成功的试验试图通过向土壤中注入压力，释放水层上方土壤中的毛细管水。即使这样行之有效，抽水成本会变到原来的三倍。基因工程也会通过继续研发抗旱作物新品种，帮助解决部分难题。无论这次水资源危机的最终结果如何，显然，北美大平原地区灌溉水资源再也不会像 20 世纪中期农业繁荣时期的那样充足并且廉价了。

The Long-Term Stability of Ecosystems

Plant communities assemble themselves flexibly, and their particular structure depends on the specific history of the area. Ecologists use the term “succession” to refer to the changes that happen in plant communities and ecosystems over time. The first community in a succession is called a pioneer community, while the long-lived community at the end of succession is called a climax community. Pioneer and successional plant communities are said to change over periods from 1 to 500 years. These changes—in plant numbers and the mix of species—are cumulative. Climax communities themselves change but over periods of time greater than about 500 years.

An ecologist who studies a pond today may well find it relatively unchanged in a year’s time. Individual fish may be replaced, but the number of fish will tend to be the same from one year to the next. We can say that the properties of an ecosystem are more stable than the individual organisms that compose the ecosystem.

At one time, ecologists believed that species diversity made ecosystems stable. They believed that the greater the diversity the more stable the ecosystem. Support for this idea came from the observation that long-lasting climax communities usually have more complex food webs and more species diversity than pioneer communities. Ecologists concluded that the apparent stability of climax ecosystems depended on their complexity. To take an extreme example, farmlands dominated by a single crop are so unstable that one year of bad weather or the invasion of a single pest can destroy the entire crop. In contrast, a complex climax community, such as a temperate forest, will tolerate considerable damage from weather to pests.

The question of ecosystem stability is complicated, however. The first problem is that ecologists do not all agree what “stability” means. Stability can be defined as simply lack of change. In that case, the climax community would be considered the most stable, since, by definition, it changes the least over time. Alternatively, stability can be defined as the speed with which an ecosystem returns to a particular form following a major disturbance, such as a fire. This kind of stability is also called resilience. In that case, climax communities would be the most fragile and the least stable, since they can require hundreds of years to return to the climax state.

Even the kind of stability defined as simple lack of change is not always associated with maximum diversity. At least in temperate zones, maximum diversity is often found in mid-successional stages, not in the climax community. Once a redwood forest matures, for example, the kinds of species and the number of individuals growing on the forest floor are reduced. In general, diversity, by itself, does not ensure stability. Mathematical models of ecosystems likewise suggest that diversity does not guarantee ecosystem stability—just the opposite, in fact. A more complicated system is, in general, more likely than a simple system to break down. A fifteen-speed racing bicycle is more likely to break down than a child’s tricycle.

Ecologists are especially interested to know what factors contribute to the resilience of communities because climax communities all over the world are being severely damaged or destroyed by human activities. The destruction caused by the volcanic explosion of Mount St. Helens, in the northwestern United States, for example, pales in comparison to the destruction caused by humans. We need to know what aspects of a community are most important to the community’s resistance to destruction, as well as its recovery.

Many ecologists now think that the relative long-term stability of climax communities comes not from diversity but from the “patchiness” of the environment, an environment that varies from place to place supports more kinds of organisms than an environment that is uniform. A local population that goes extinct is quickly

replaced by immigrants from an adjacent community. Even if the new population is of a different species, it can approximately fill the niche vacated by the extinct population and keep the food web intact.

Paragraph 1: Plant communities assemble themselves flexibly, and their particular structure depends on the specific history of the area. Ecologists use the term “succession” to refer to the changes that happen in plant communities and ecosystems over time. The first community in a succession is called a pioneer community, while the long-lived community at the end of succession is called a climax community. Pioneer and successional plant communities are said to change over periods from 1 to 500 years. These changes—in plant numbers and the mix of species—are cumulative. Climax communities themselves change but over periods of time greater than about 500 years.

1. The word “particular” in the passage is closest in meaning to
 - natural
 - final
 - specific
 - complex
2. According to paragraph 1, which of the following is NOT true of climax communities?
 - They occur at the end of a succession.
 - They last longer than any other type of community.
 - The numbers of plants in them and the mix of species do not change.
 - They remain stable for at least 500 years at a time.

Paragraph 2: An ecologist who studies a pond today may well find it relatively unchanged in a year’s time. Individual fish may be replaced, but the number of fish will tend to be the same from one year to the next. We can say that the properties of an ecosystem are more stable than the individual organisms that compose the ecosystem.

3. According to paragraph 2, which of the following principles of ecosystems can be learned by studying a pond?
 - Ecosystem properties change more slowly than individuals in the system.
 - The stability of an ecosystem tends to change as individuals are replaced.
 - Individual organisms are stable from one year to the next.
 - A change in the members of an organism does not affect an ecosystem’s properties.

Paragraph 3: At one time, ecologists believed that species diversity made ecosystems stable. They believed that the greater the diversity the more stable the ecosystem. Support for this idea came from the observation that long-lasting climax communities usually have more complex food webs and more species diversity than pioneer communities. Ecologists concluded that the apparent stability of climax ecosystems depended on their complexity. To take an extreme example, farmlands dominated by a single crop are so unstable that one year of bad weather or the invasion of a single pest can destroy the entire crop. In contrast, a complex climax community, such as a temperate forest, will tolerate considerable damage from weather to pests.

4. According to paragraph 3, ecologists once believed that which of the following illustrated the most stable ecosystems?
 - Pioneer communities
 - Climax communities

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- Single-crop farmlands
 - Successional plant communities

Paragraph 4: The question of ecosystem stability is complicated, however. The first problem is that ecologists do not all agree what “stability” means. Stability can be defined as simply lack of change. In that case, the climax community would be considered the most stable, since, by definition, it changes the least over time. Alternatively, stability can be defined as the speed with which an ecosystem returns to a particular form following a major disturbance, such as a fire. This kind of stability is also called resilience. In that case, climax communities would be the most fragile and the least stable, since they can require hundreds of years to return to the climax state.

5. According to paragraph 4, why is the question of ecosystem stability complicated?

- The reasons for ecosystem change are not always clear.
- Ecologists often confuse the word “stability” with the word “resilience.”
- The exact meaning of the word “stability” is debated by ecologists.
- There are many different answers to ecological questions.

6. According to paragraph 4, which of the following is true of climax communities?

- They are more resilient than pioneer communities.
- They can be considered both the most and the least stable communities.
- They are stable because they recover quickly after major disturbances.
- They are the most resilient communities because they change the least over time.

Paragraph 5: Even the kind of stability defined as simple lack of change is not always associated with maximum diversity. At least in temperate zones, maximum diversity is often found in mid-successional stages, not in the climax community. Once a redwood forest matures, for example, the kinds of species and the number of individuals growing on the forest floor are reduced. In general, diversity, by itself, does not ensure stability. Mathematical models of ecosystems likewise suggest that diversity does not guarantee ecosystem stability—just the opposite, in fact. A more complicated system is, in general, more likely than a simple system to break down. A fifteen-speed racing bicycle is more likely to break down than a child’s tricycle.

7. Which of the following can be inferred from paragraph 5 about redwood forests?

- They become less stable as they mature.
- They support many species when they reach climax.
- They are found in temperate zones.
- They have reduced diversity during mid-successional stages.

8. The word “guarantee” in the passage is closest in meaning to

- increase
- ensure
- favor
- complicate

9. In paragraph 5, why does the author provide the information that “A fifteen-speed racing bicycle is more likely to break down than a child’s tricycle”?

- To illustrate a general principle about the stability of systems by using an everyday example
- To demonstrate that an understanding of stability in ecosystems can be applied to help understand stability in other situations
- To make a comparison that supports the claim that, in general, stability increases with diversity

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- To provide an example that contradicts mathematical models of ecosystems

Paragraph 6: Ecologists are especially interested to know what factors contribute to the resilience of communities because climax communities all over the world are being severely damaged or destroyed by human activities. The destruction caused by the volcanic explosion of Mount St. Helens, in the northwestern United States, for example, pales in comparison to the destruction caused by humans. We need to know what aspects of a community are most important to the community's resistance to destruction, as well as its recovery.

10. The word "pales" in the passage is closest in meaning to
- increases proportionally
 - differs
 - loses significance
 - is common

Paragraph 7: Many ecologists now think that the relative long-term stability of climax communities comes not from diversity but from the "patchiness" of the environment, an environment that varies from place to place supports more kinds of organisms than an environment that is uniform. A local population that goes extinct is quickly replaced by immigrants from an adjacent community. Even if the new population is of a different species, it can approximately fill the niche vacated by the extinct population and keep the food web intact.

11. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incurred choices change the meaning in important ways or leave out essential information.
- Ecologists now think that the stability of an environment is a result of diversity rather than patchiness.
 - Patchy environments that vary from place to place do not often have high species diversity.
 - Uniform environments cannot be climax communities because they do not support as many types of organisms as patchy environments.
 - A patchy environment is thought to increase stability because it is able to support a wide variety of organisms.

12. The word "adjacent" in the passage is closest in meaning to
- foreign
 - stable
 - fluid
 - neighboring

Paragraph 6: ■Ecologists are especially interested to know what factors contribute to the resilience of communities because climax communities all over the world are being severely damaged or destroyed by human activities. ■The destruction caused by the volcanic explosion of Mount St. Helens, in the northwestern United States, for example, pales in comparison to the destruction caused by humans. ■We need to know what aspects of a community are most important to the community's resistance to destruction, as well as its recovery. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

In fact, damage to the environment by humans is often much more severe than damage by natural events and processes.

Where would the sentence best fit? Click on a square to add the sentence to the passage.

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some

sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

The process of succession and the stability of a climax community can change over time.

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-
-

Answer choices

- The changes that occur in an ecosystem from the pioneer to the climax community can be seen in one human generation.
- A high degree of species diversity does not always result in a stable ecosystem.
- The level of resilience in a plant community contributes to its long-term stability.
- Ecologists agree that climax communities are the most stable types of ecosystems.
- Disagreements over the meaning of the term “stability” make it difficult to identify the most stable ecosystems.
- The resilience of climax communities makes them resistant to destruction caused by humans.

参考答案:

1. ○3
2. ○3
3. ○1
4. ○2
5. ○3
6. ○2
7. ○3
8. ○2
9. ○1
10. ○3
11. ○4
12. ○4
13. ○2
14. A high degree of species diversity...
The level of resilience in...
Disagreements over the...

生态系统的长期稳定

植物群体可以自由地聚集，他们特殊的结构取决于聚集区域的具体历史。生态学家使用“演替”来诠释植物群落和生态系统随着时间推移所发生的变化。演替中的第一个群落被称作先锋群落，而处于演替最后那个长期生存的群落被称为顶极群落。先锋群落和紧接着的植物群落的变化周期是从1到500年不等，植物数量和混合种类数量的变化是慢慢积累的。顶极群落本身也改变，但其变化周期超过500年。

现代一个研究池塘的生态学会发现池塘在一年当中相对而言是不变的。个别鱼类可能被替换，但一年一年鱼的总数都趋于一致。也就是说，生态系统自身的性质比组成生态系统的单个生物体更为稳定。

生态学家们一度认为物种的多样性使生态系统稳定，生态系统物种越多样则生态系统越稳定。通过观察得出的结论支持了这个观点，长期持久的顶极群落通常要比先锋群落具备更为复杂的食物网和更多的物种。生态学家们得出的结论是：顶点生态系统的稳定性明显取决于他们的复杂化程度。举个极端的例子，在单一作物的农田中，一年的恶劣天气或单一害虫的入侵就可以摧毁所有作物。与此相反，在一个复杂的顶极群落里，如温带森林，他们便可以抵御来自气候和害虫的入侵。

不管怎样，生态系统稳定性的问题非常复杂。首先，不是所有的生态学家都赞同“稳定”的含义。稳定性可以简单地定义为缺乏变化。如果是这样的话，顶极群落将被视为最稳定的，因为根据定义，他们随着时间推移而变化是最少。另外，稳定性也可以界定为生态系统在经历了严重破坏之后回复原貌的速度，比如火灾。这种稳定性也被称作弹性。在这种情况下，顶极群落将是最脆弱和最不稳定的，因为他们可能需要数百年时间才能恢复到顶点状态。

即使是这种被定义为简单地缺乏变化的稳定性并非总是与最多样的物种联系起来。至少在温带地区，会经常在演替过程中发现最多物种，而不是在顶极群落中。例如，红树林一旦成熟，其中的物种数量以及单个物种的数量都会减少。总的来说，多样性本身并不能保证稳定性，生态系统的数学模型也可以得出同样的结论。一般来说，一个更复杂的系统可能比一个简单的系统更容易被破坏（一个十五速的赛车比一个孩子的三轮车更容易损坏）。

生态学家们更想弄清楚到底哪些因素有助于促成群落的恢复，因为世界各地的顶极群落都因为人类活动而遭到严重的损坏或毁坏。就像美国西北部圣海伦火山的猛烈喷发所造成的破坏，在人类活动对环境造成的破坏面前也相形见绌。我们必须了解对群落抵抗破坏和恢复来说哪些是最重要的。

现在的很多生态学家们认为，顶极群落相对长期的稳定性并非来自于多样性，而是来自环境的“补缀”，随处变化的环境比统一的环境更有利于多种有机体的生存。当地物种灭亡后，马上就会被相邻群落的移民取代。即便是另一种不同的物种，他们也可以填补那些已灭绝生物的空缺，并保持食物网的完整。

Online Test

Opportunists and Competitors

Growth, reproduction, and daily metabolism all require an organism to expend energy. The expenditure of energy is essentially a process of budgeting, just as finances are budgeted. If all of one's money is spent on clothes, there may be none left to buy food or go to the movies. Similarly, a plant or animal cannot squander all its energy on growing a big body if none would be left over for reproduction, for this is the surest way to extinction.

All organisms, therefore, allocate energy to growth, reproduction, maintenance, and storage. No choice is involved; this allocation comes as part of the genetic package from the parents. Maintenance for a given body design of an organism is relatively constant. Storage is important, but ultimately that energy will be used for maintenance, reproduction, or growth. Therefore the principal differences in energy allocation are likely to be between growth and reproduction.

Almost all of an organism's energy can be diverted to reproduction, with very little allocated to building the body. Organisms at this extreme are "opportunists." At the other extreme are "competitors," almost all of whose resources are invested in building a huge body, with a bare minimum allocated to reproduction.

Dandelions are good examples of opportunists. Their seed heads raised just high enough above the ground to catch the wind, the plants are no bigger than they need be, their stems are hollow, and all the rigidity comes from their water content. Thus, a minimum investment has been made in the body that becomes a platform for seed dispersal. These very short-lived plants reproduce prolifically; that is to say they provide a constant rain of seed in the neighborhood of parent plants. A new plant will spring up wherever a seed falls on a suitable soil surface, but because they do not build big bodies, they cannot compete with other plants for space, water, or sunlight. These plants are termed opportunists because they rely on their seeds' falling into settings where competing plants have been removed by natural processes, such as along an eroding riverbank, on landslips, or where a tree falls and creates a gap in the forest canopy.

Opportunists must constantly invade new areas to compensate for being displaced by more competitive species. Human landscapes of lawns, fields, or flowerbeds provide settings with bare soil and a lack of competitors that are perfect habitats for colonization by opportunists. Hence, many of the strongly opportunistic plants are the common weeds of fields and gardens.

Because each individual is short-lived, the population of an opportunist species is likely to be adversely affected by drought, bad winters, or floods. If their population is tracked through time, it will be seen to be particularly unstable—soaring and plummeting in irregular cycles.

The opposite of an opportunist is a competitor. These organisms tend to have big bodies, are long-lived, and spend relatively little effort each year on reproduction. An oak tree is a good example of a competitor. A massive oak claims its ground for 200 years or more, outcompeting all other would-be canopy trees by casting a dense shade and drawing up any free water in the soil. The leaves of an oak tree taste foul because they are rich in tannins, a chemical that renders them distasteful or indigestible to many organisms. The tannins are part of the defense mechanism that is essential to longevity. Although oaks produce thousands of acorns, the investment in a crop of acorns is small compared with the energy spent on building leaves, trunk, and roots. Once an oak tree

becomes established, it is likely to survive minor cycles of drought and even fire. A population of oaks is likely to be relatively stable through time, and its survival is likely to depend more on its ability to withstand the pressures of competition or predation than on its ability to take advantage of chance events. It should be noted, however, that the pure opportunist or pure competitor is rare in nature, as most species fall between the extremes of a continuum, exhibiting a blend of some opportunistic and some competitive characteristics.

Paragraph 1: Growth, reproduction, and daily metabolism all require an organism to expend energy. The expenditure of energy is essentially a process of budgeting, just as finances are budgeted. If all of one's money is spent on clothes, there may be none left to buy food or go to the movies. Similarly, a plant or animal cannot squander all its energy on growing a big body if none would be left over for reproduction, for this is the surest way to extinction.

1. The word "squander" in the passage is closest in meaning to
 - extend
 - transform
 - activate
 - waste
2. The word "none" in the passage refers to
 - food
 - plant or animal
 - energy
 - big body
3. In paragraph 1, the author explains the concept of energy expenditure by
 - Identifying types of organisms that became extinct
 - Comparing the scientific concept to a familiar human experience
 - Arguing that most organisms conserve rather than expend energy
 - Describing the processes of growth, reproduction, and metabolism

Paragraph 3: Almost all of an organism's energy can be diverted to reproduction, with very little allocated to building the body. Organisms at this extreme are "opportunists." At the other extreme are "competitors," almost all of whose resources are invested in building a huge body, with a bare minimum allocated to reproduction.

4. According to the passage, the classification of organisms as "opportunists" or "competitors" is determined by
 - How the genetic information of an organism is stored and maintained
 - The way in which the organism invests its energy resources
 - Whether the climate in which the organism lives is mild or extreme
 - The variety of natural resources the organism consumes in its environment

Dandelions are good examples of opportunists. Their seed heads raised just high enough above the ground to catch the wind, the plants are no bigger than they need be, their stems are hollow, and all the rigidity comes from their water content. Thus, a minimum investment has been made in the body that becomes a platform for seed dispersal. These very short-lived plants reproduce prolifically; that is to say they provide a constant rain of seed in the neighborhood of parent plants. A new plant will spring up wherever a seed falls on a suitable soil surface, but because they do not build big bodies, they cannot compete with other plants for space, water, or

sunlight. These plants are termed opportunists because they rely on their seeds' falling into settings where competing plants have been removed by natural processes, such as along an eroding riverbank, on landslips, or where a tree falls and creates a gap in the forest canopy.

5. The word “dispersal” in the passage is closest in meaning to

- development
- growth
- distribution
- protection

6. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Because their seeds grow in places where competing plants are no longer present, dandelions are classified as opportunists.
- Dandelions are called opportunists because they contribute to the natural processes of erosion and the creation of gaps in the forest canopy.
- The term opportunists apply to plants whose seeds fall in places where they can compete with the seeds of other plants.
- The term opportunists apply to plants whose falling seeds are removed by natural processes.

Paragraph 7: The opposite of an opportunist is a competitor. These organisms tend to have big bodies, are long-lived, and spend relatively little effort each year on reproduction. An oak tree is a good example of a competitor. A massive oak claims its ground for 200 years or more, outcompeting all other would-be canopy trees by casting a dense shade and drawing up any free water in the soil. The leaves of an oak tree taste foul because they are rich in tannins, a chemical that renders them distasteful or indigestible to many organisms. The tannins are part of the defense mechanism that is essential to longevity. Although oaks produce thousands of acorns, the investment in a crop of acorns is small compared with the energy spent on building leaves, trunk, and roots. Once an oak tree becomes established, it is likely to survive minor cycles of drought and even fire. A population of oaks is likely to be relatively stable through time, and its survival is likely to depend more on its ability to withstand the pressures of competition or predation than on its ability to take advantage of chance events. It should be noted, however, that the pure opportunist or pure competitor is rare in nature, as most species fall between the extremes of a continuum, exhibiting a blend of some opportunistic and some competitive characteristics.

7. The word “massive” in the passage is closest in meaning to

- huge
- ancient
- common
- successful

8. All of the following are mentioned in paragraph 7 as contributing to the longevity of an oak tree EXCEPT

- The capacity to create shade
- Leaves containing tannin
- The ability to withstand mild droughts and fire
- The large number of acorns the tree produces

9. According to the passage, oak trees are considered competitors because

- they grow in areas free of opportunists
- they spend more energy on their leaves, trunks and roots than on their acorns

- their population tends to increase or decrease in irregular cycles
- unlike other organisms, they do not need much water or sunlight

10. In paragraph 7, the author suggests that most species of organisms

- are primarily opportunists
- are primarily competitors
- begin as opportunists and evolve into competitors
- have some characteristics of opportunists and some of competitors

Paragraph 5: Opportunists must constantly invade new areas to compensate for being displaced by more competitive species. Human landscapes of lawns, fields, or flowerbeds provide settings with bare soil and a lack of competitors that are perfect habitats for colonization by opportunists. ■ Hence, many of the strongly opportunistic plants are the common weeds of fields and gardens. ■

Paragraph 6: Because each individual is short-lived, the population of an opportunist species is likely to be adversely affected by drought, bad winters, or floods. ■ If their population is tracked through time, it will be seen to be particularly unstable—soaring and plummeting in irregular cycles. ■

11. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Such episodic events will cause a population of dandelions, for example, to vary widely.

Where would the sentence best fit?

12. **Directions:** Complete the table by matching the phrases below

Directions: Select the appropriate phrases from the answer choices and match them to the type of organism to which they relate. TWO of the answer choices will NOT be used. **This question is worth 4 points.**

Opportunists	Competitors
●	●
●	●
●	●
●	

Answer Choices

- Vary frequently the amount of energy they spend in body maintenance
- Have mechanisms for protecting themselves from predation
- Succeed in locations where other organisms have been removed
- Have relatively short life spans
- Invest energy in the growth of large, strong structures
- Have populations that are unstable in response to climate conditions
- Can rarely find suitable soil for reproduction
- Produce individuals that can withstand changes in the environmental conditions
- Reproduce in large numbers

参考答案:

1. ○4

2. ○3

3. ○2

4. ○2

5. ○3

6. ○1

7. ○1

8. ○4

9. ○2

10.○4

11.○3

12.○Opportunists: 3, 4, 6, 9

○Competitors: 2, 5, 8

参考译文：

机会主义者和竞争者

所有生物都需要通过消耗能量来实现生长、繁殖和每日的新陈代谢。能量的消耗从根本上来说，是一个主体进行能量预算的过程，如同财政预算。如果一个人所有的钱都用来买衣服，可能就没钱购买食物或者看电影了。同样，动植物不能将所有的能量都浪费在生长上，如果他们没有多余的能量用于繁殖，那么它必将走向灭绝。

因此，所有生物体都会将自己的能量进行分配用以生长、繁殖、维系生命和进行储备。它们没有选择，这种分配方式是来自上一代遗传基因的一部分。维系生命对于一个特定生物的身体是相对恒定的。储备很重要，但储备的能量最终都将被用于维系生命、繁殖或者生长。因此，能量分配上的主要不同就在于生长和繁殖之间。

一个生物体所有的能量几乎都可以转用于繁殖，基本没有多少能量被分配用于生长。处于这个极端的生物体被称作“机会主义者”。处于另一个极端的是“竞争者”，“竞争者”几乎将其所有的能量都用于生长一个庞大的身躯，而仅用最低限度的能量进行繁殖。

蒲公英是“机会主义者”典型例子。蒲公英的种子的头部刚好生长到高出地面接触到风的高度，他们的体型也刚好是它们需要的最低尺寸，茎部是中空的，他们通过体内水分来维持自身的硬度。蒲公英对身体最低限度能量的分配，使得他们成为一个散布种子的平台。这些寿命短暂的植物大量繁殖；这就是说，他们在母体的周围下一场种子雨。一旦种子落在了适合生长的土壤表面，新的生命体便会迅速生长，但是，因为他们长成的躯体并不大，因此无法与其他植物竞争空间、水或阳光。这些植物被称为机会主义者，因为他们依靠其种子落入那些竞争者们已经被大自然淘汰了的地方生长而成活，如被侵蚀了的河岸、山崩之处或在由于树木倒下而在森林冠层中形成的空隙处等。

机会主义者必须不断侵入新的领域，以抵消更具竞争力的物种对他们的挤兑。人工草坪、田地或花圃提供的光秃秃的土地，以及没有竞争者的环境是“机会主义者”完美的栖息地。因此，人们田地和花园中常见的杂草多是擅长生长繁殖的机会主义植物。

因为每个个体的寿命短暂，机会主义植物的数量很可能受到干旱、恶劣的冬天天气或者洪水等不利因素的影响。跟踪它们一段时间，就会发现它们的数量特别不稳定，在不规则周期内飙升和暴跌。

与机会主义者相对应的是竞争者。这些生物体往往有拥有庞大的身躯、寿命较长并且每年用在繁殖上面的能量相对较少。橡树是典型的“竞争者”，一颗巨大的橡树占据它的领地长达 **200** 年甚至更久，通过制造浓密的树荫和吸收土壤中任何多余水分驱逐所有可能的冠层树木。橡树的树叶很难闻，其中富含丹宁酸，它会让很多生物体感到不适或无法消化。丹宁酸是使得树长寿的重要防卫机制的一部分。虽然橡树可以产生数以千计的橡子，但是，它们对大量的橡子投入的能量，和用于树叶、树干和根部生长的能量相比，简直微乎其微。一旦橡树长成，在短周期的干旱甚至火灾中它都能够轻易存活。橡树的数量在一段时期内似乎是相对稳定的，它的存活可能更多地取决于它善于面对竞争或掠食的压力，并非依赖于利用偶然事件。然而，值得关注的是，单纯机会主义者或竞争者在自然界中是很少见的，大多数的物种都属于这两个极端组成的区域中，同时具有二者的一些特点。

Lascaux Cave Paintings

In Southwest France in the 1940's, playing children discovered Lascaux Grotto, a series of narrow cave chambers that contain huge prehistoric paintings of animals. Many of these beasts are as large as 16 feet (almost 5 meters). Some follow each other in solemn parades, but others swirl about, sideways and upside down. The animals are bulls, wild horses, reindeer, bison, and mammoths outlined with charcoal and painted mostly in reds, yellow, and browns. Scientific analysis reveals that the colors were derived from ocher and other iron oxides ground into a fine powder. Methods of applying color varied: some colors were brushed or smeared on rock surfaces and others were blown or sprayed. It is possible that tubes made from animal bones were used for spraying because hollow bones, some stained with pigment, have been found nearby.

One of the most puzzling aspects of the paintings is their location. Other rock paintings—for example, those of Bushmen in South Africa—are either located near cave entrances or completely in the open. Cave paintings in France and Spain, however, are in recesses and caverns far removed from original cave entrances. This means that artists were forced to work in cramped spaces and without sources of natural light. It also implies that whoever made them did not want them to be easily found. Since cave dwellers normally lived close to entrances, there must have been some reason why so many generations of Lascaux cave dwellers hid their art.

Scholars offer three related but different opinions about the mysterious origin and significance of these paintings. One opinion is that the paintings were a record of seasonal migrations made by herds. Because some paintings were made directly over others, obliterating them, it is probable that a painting's value ended with the migration it pictured. Unfortunately, this explanation fails to explain the hidden locations, unless the migrations were celebrated with secret ceremonies.

Another opinion is that the paintings were directly related to hunting and were an essential part of a special preparation ceremony. This opinion holds that the pictures and whatever ceremony they accompanied were an ancient method of psychologically motivating hunters. It is conceivable that before going hunting the hunters would draw or study pictures of animals and imagine a successful hunt. Considerable support exists for this opinion because several animals in the pictures are wounded by arrows and spears. This opinion also attempts to solve the overpainting by explaining that an animal's picture had no further use after the hunt.

A third opinion takes psychological motivation much further into the realm of tribal ceremonies and mystery: the belief that certain animals assumed mythical significance as ancient ancestors or protectors of a given tribe or clan. Two types of images substantiate this theory: the strange, indecipherable geometric shapes that appear near some animals, and the few drawings of men. Wherever men appear they are crudely drawn and their bodies are elongated and rigid. Some men are in a prone position and some have bird or animal heads. Advocates for this opinion point to reports from people who have experienced a trance state, a highly suggestive state of low consciousness between waking and sleeping. Uniformly, these people experienced weightlessness and the sensation that their bodies were being stretched lengthwise. Advocates also point to people who believe that the forces of nature are inhabited by spirits, particularly shamans* who believe that an animal's spirit and energy is transferred to them while in a trance. One Lascaux narrative picture, which shows a man with a birdlike head and a wounded animal, would seem to lend credence to this third opinion, but there is still much that remains unexplained. For example, where is the proof that the man in the picture is a shaman? He could as easily be a hunter wearing a headmask. Many tribal hunters, including some Native Americans, camouflaged themselves by wearing animal heads and hides.

Perhaps so much time has passed that there will never be satisfactory answers to the cave images, but their mystique only adds to their importance. Certainly a great art exists, and by its existence reveals that ancient human beings were not without intelligence, skill, and sensitivity.

Shamans: holy people who act as healers and diviners

Paragraph 1: In Southwest France in the 1940's, playing children discovered Lascaux Grotto, a series of narrow cave chambers that contain huge prehistoric paintings of animals. Many of these beasts are as large as 16 feet (almost 5 meters). Some follow each other in solemn parades, but others swirl about, sideways and upside down. The animals are bulls, wild horses, reindeer, bison, and mammoths outlined with charcoal and painted mostly in reds, yellow, and browns. Scientific analysis reveals that the colors were derived from ocher and other iron oxides ground into a fine powder. Methods of applying color varied: some colors were brushed or smeared on rock surfaces and others were blown or sprayed. It is possible that tubes made from animal bones were used for spraying because hollow bones, some stained with pigment, have been found nearby.

1. The word "others" in the passage refers to
 - chambers
 - paintings
 - beasts
 - parades
2. The word "Methods" in the passage is closest in meaning to
 - Ways
 - Shades
 - Stages
 - Rules
3. What are the bones found in the Lascaux caves believed to indicate?
 - Wild animals sometimes lived in the cave chambers.
 - Artists painted pictures on both walls and bones.
 - Artists ground them into a fine powder to make paint.
 - Artists developed special techniques for painting the walls.

Paragraph 2: One of the most puzzling aspects of the paintings is their location. Other rock paintings—for example, those of Bushmen in South Africa—are either located near cave entrances or completely in the open. Cave paintings in France and Spain, however, are in recesses and caverns far removed from original cave entrances. This means that artists were forced to work in cramped spaces and without sources of natural light. It also implies that whoever made them did not want them to be easily found. Since cave dwellers normally lived close to entrances, there must have been some reason why so many generations of Lascaux cave dwellers hid their art.

4. Why does the author mention Bushmen in South Africa in paragraph 2?
 - To suggest that ancient artists from all over the world painted animals on rocks
 - To contrast the location of their rock paintings to those found at Lascaux
 - To support the claim that early artists worked in cramped spaces
 - To give an example of other artists who painted in hidden locations

5. What can be inferred from paragraph 2 about cave painters in France and Spain?

- They also painted rocks outside caves.
- They did not live close to the cave entrances.
- They developed their own sources of light to use while painting.
- Their painting practices did not last for many years.

Paragraph 3: Scholars offer three related but different opinions about the mysterious origin and significance of these paintings. One opinion is that the paintings were a record of seasonal migrations made by herds. Because some paintings were made directly over others, obliterating them, it is probable that a painting's value ended with the migration it pictured. Unfortunately, this explanation fails to explain the hidden locations, unless the migrations were celebrated with secret ceremonies.

6. Why does the author mention secret ceremonies?

- To present a common opinion held by many scholars
- To suggest a similarity between two opinions held by scholars
- To suggest a possible explanation for a weakness in an opinion expressed in the passage
- To give evidence that contradicts a major opinion expressed in the passage

Paragraph 4: Another opinion is that the paintings were directly related to hunting and were an essential part of a special preparation ceremony. This opinion holds that the pictures and whatever ceremony they accompanied were an ancient method of psychologically motivating hunters. It is conceivable that before going hunting the hunters would draw or study pictures of animals and imagine a successful hunt. Considerable support exists for this opinion because several animals in the pictures are wounded by arrows and spears. This opinion also attempts to solve the overpainting by explaining that an animal's picture had no further use after the hunt.

7. The word "accompanied" in the passage is closest in meaning to

- represented
- developed into
- were associated with
- came after

8. According to paragraph 4, why do some scholars believe that the paintings were related to hunting?

- Because some tools used for painting were also used for hunting
- Because cave inhabitants were known to prefer animal food rather than plant food
- Because some of the animals are shown wounded by weapons
- Because many hunters were also typically painters

Paragraph 5: A third opinion takes psychological motivation much further into the realm of tribal ceremonies and mystery: the belief that certain animals assumed mythical significance as ancient ancestors or protectors of a given tribe or clan. Two types of images substantiate this theory: the strange, indecipherable geometric shapes that appear near some animals, and the few drawings of men. Wherever men appear they are crudely drawn and their bodies are elongated and rigid. Some men are in a prone position and some have bird or animal heads. Advocates for this opinion point to reports from people who have experienced a trance state, a highly suggestive state of low consciousness between waking and sleeping. Uniformly, these people experienced weightlessness and the sensation that their bodies were being stretched lengthwise. Advocates also point to people who believe that the forces of nature are inhabited by spirits, particularly shamans* who believe that an animal's spirit and energy is transferred to them while in a trance. One Lascaux narrative picture, which shows a

man with a birdlike head and a wounded animal, would seem to lend credence to this third opinion, but there is still much that remains unexplained. For example, where is the proof that the man in the picture is a shaman? He could as easily be a hunter wearing a headmask. Many tribal hunters, including some Native Americans, camouflaged themselves by wearing animal heads and hides.

9. According to paragraph 5, why do some scholars refer to a trance state to help understand the cave paintings?

- To explain the state of consciousness the artists were in when they painted their pictures
- To demonstrate the mythical significance of the strange geometric shapes
- To indicate that trance states were often associated with activities that took place inside caves
- To give a possible reason for the strange appearance of the men painted on the cave walls

10. According to paragraph 5, if the man pictured with the birdlike head is not a shaman, he may have worn the headmask

- to look like an animal while a hunt took place
- to frighten off other hunters competing for food
- to prove that he is not a shaman
- to resist forces of nature thought to be present in animals

Paragraph 6: Perhaps so much time has passed that there will never be satisfactory answers to the cave images, but their mystique only adds to their importance. Certainly a great art exists, and by its existence reveals that ancient human beings were not without intelligence, skill, and sensitivity.

11. According to paragraph 6, why might the puzzling questions about the paintings never be answered?

- Keeping the paintings a mystery will increase their importance.
- The artists hid their tools with great intelligence and skill.
- Too many years have gone by since the images were painted.
- Answering the question is not very important to scholars.

Paragraph 2: One of the most puzzling aspects of the paintings is their location. Other rock paintings—for example, those of Bushmen in South Africa—are either located near cave entrances or completely in the open. ■ Cave paintings in France and Spain, however, are in recesses and caverns far removed from original cave entrances. ■ This means that artists were forced to work in cramped spaces and without sources of natural light. ■ It also implies that whoever made them did not want them to be easily found. ■ Since cave dwellers normally lived close to entrances, there must have been some reason why so many generations of Lascaux cave dwellers hid their art.

12. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

This made it easy for the artists to paint and display them for the rest of the cave dwellers.

Where would the sentence best fit?

13. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Scholars have wondered about the meaning of the subjects, location, and overpainting of Lascaux cave images.



●

●

Answer Choices

- The paintings may have recorded information about animal migrations, and may only have been useful for one migration at a time.
- The human figures represented in the paintings appear to be less carefully shaped than those of animals.
- It is possible that the animals in the paintings were of mythical significance to the tribe, and the paintings reflected an important spiritual practice.
- Unlike painters of the recently discovered paintings, other Lascaux cave painters usually painted on rocks near cave entrances or in open spaces outside the caves.
- Some scholars believe that the paintings motivated hunters by allowing them to picture a successful hunt.
- Scientific analysis suggests that paintings were sprayed onto the rock walls with tubes made from animal bones.

参考答案:

1. ○ 3

2. ○ 1

3. ○ 4

4. ○ 2

5. ○ 3

6. ○ 3

7. ○ 3

8. ○ 3

9. ○ 4

10. ○ 1

11. ○ 3

12. ○ 1

13. The paintings may have...

It is possible that the animals...

Some scholars believe that...

拉斯科岩洞画

在二十世纪四十年代的法国的西南部，玩耍中的孩子们发现了拉斯科岩洞，一系列狭窄的洞穴室内含有庞大的史前动物题材绘画。其中许多动物有 **16 英尺** 那么大（几乎 **5 米**）。其中一些动物跟随着彼此庄严地游行，但其它动物在四周和一侧混乱的盘旋着。这些动物包括公牛、野马、驯鹿、野牛和猛犸，它们被木炭勾勒出外形，填上红色、黄色和棕色。科学分析表明，颜色来自黄土和其他氧化铁制成的精细粉末。上色的方法多种多样，岩石表面的颜色有的是涂刷上去的，有的是吹制或喷涂的。喷洒的工具很可能用的是动物骨骼制成的管子，因为在画的附近发现了一些沾有颜料的空心骨骼。

这些绘画中令人费解的问题之一是他们所处的位置。其他岩石画——例如那些南非布希曼人的画——要么靠近洞口，要么完全处于洞口的地方。然而，法国和西班牙的洞穴壁画位于洞穴深处或是远离洞穴最初入口的地方。这意味着艺术家们被强迫在狭窄的缺乏自然光线的空间里工作。这同时暗示着无论是谁画的画，都不希望这些画被轻易的发现。由于穴居人通常住在靠近洞口的地方，一定存在某些原因使得世代的拉斯科岩洞穴居者隐藏着他们的艺术作品。

针对这些画的神秘起源和它们的重要性，学者们提出了三种相关但不同的看法。一种看法认为，这些绘画是牧人用来记录牧群季节性迁徙的。因为有些画直接画在另一些画上面，把原有画面擦掉了，很有可能是这幅画的价值随着它所描绘迁徙这过程的结束而结束。不幸的是，这一解释未能揭露这些绘画的地点为何如此隐蔽，除非他们是想通过这种秘密的仪式来庆祝牧群迁徙。

另一种观点认为这些画与狩猎有直接关系，他们是一种特别的筹备仪式的重要组成部分。画面及它们所反映各种仪式是一种对猎人进行心理激励的古老方法。试想一下，猎人们狩猎之前，先将猎物画出来或者进行研习，并设想这次狩猎成功。大多数人支持这种观点，因为这些画当中的一些动物被箭和矛击伤。同时，这种观点尝试解释重复绘画的原因：狩猎结束后，之前所绘的猎物图片不再有用。

第三种意见把心理动机上升到部落仪式和神话的层面：他们相信某些动物拥有神秘的重要性，它们是某个特定部落或种族的古老祖先或守护神。两种类型的图像证实这一理论：在动物附近有些奇怪、难以辨别的几何图形和几个男子的图像。无论人类的图像在哪出现，都画得很粗糙并且身体都被拉长和僵化，有的人是俯卧着的，有的人有鸟或动物的头。这个观点的提倡者们提供了一份人类经历昏迷状态的报告，昏迷是一种介于清醒和睡眠之间的低意识的状态。这些人昏迷时都感受到的失重状态和身体被拉长的感觉。而且，那些相信精神存在于自然力量之中的人，特别是巫师，相信动物的精神和能量可以在昏迷状态中获得。一幅拉斯科岩洞画描绘了一个鸟头人和一个受伤动物的故事，这幅画看起来会增加了这种观点的可信度，但仍有很多疑惑尚未揭开。比如，如何证明画中人就是巫师？那个人可以轻易被看作是一个带着面具的猎人。包括土著美洲人在内的许多部落的猎人，都会通过身着动物的头和兽皮来伪装自己。

或许时间太久，对这些岩洞画解释也可能永远都没有令人满意的答案，但是它们的神秘感会使它们更加重要。当然，一个伟大艺术的存在表明的了古代人类拥有智慧、技术和感情。

Electricity from Wind

Since 1980, the use of wind to produce electricity has been growing rapidly. In 1994 there were nearly 20,000 wind turbines worldwide, most grouped in clusters called wind farms that collectively produced 3,000 megawatts of electricity. Most were in Denmark (which got 3 percent of its electricity from wind turbines) and California (where 17,000 machines produced 1 percent of the state's electricity, enough to meet the residential needs of a city as large as San Francisco). In principle, all the power needs of the United States could be provided by exploiting the wind potential of just three states—North Dakota, South Dakota, and Texas.

Large wind farms can be built in six months to a year and then easily expanded as needed. With a moderate to fairly high net energy yield, these systems emit no heat-trapping carbon dioxide or other air pollutants and need no water for cooling; manufacturing them produces little water pollution. The land under wind turbines can be used for grazing cattle and other purposes, and leasing land for wind turbines can provide extra income for farmers and ranchers.

Wind power has a significant cost advantage over nuclear power and has become competitive with coal-fired power plants in many places. With new technological advances and mass production, projected cost declines should make wind power one of the world's cheapest ways to produce electricity. In the long run, electricity from large wind farms in remote areas might be used to make hydrogen gas from water during periods when there is less than peak demand for electricity. The hydrogen gas could then be fed into a storage system and used to generate electricity when additional or backup power is needed.

Wind power is most economical in areas with steady winds. In areas where the wind dies down, backup electricity from a utility company or from an energy storage system becomes necessary. Backup power could also be provided by linking wind farms with a solar cell, with conventional or pumped-storage hydropower, or with efficient natural-gas-burning turbines. Some drawbacks to wind farms include visual pollution and noise, although these can be overcome by improving their design and locating them in isolated areas.

Large wind farms might also interfere with the flight patterns of migratory birds in certain areas, and they have killed large birds of prey (especially hawks, falcons, and eagles) that prefer to hunt along the same ridge lines that are ideal for wind turbines. The killing of birds of prey by wind turbines has pitted environmentalists who champion wildlife protection against environmentalists who promote renewable wind energy. Researchers are evaluating how serious this problem is and hope to find ways to eliminate or sharply reduce this problem. Some analysts also contend that the number of birds killed by wind turbines is dwarfed by birds killed by other human-related sources and by the potential loss of entire bird species from possible global warming. Recorded deaths of birds of prey and other birds in wind farms in the United States currently amount to no more than 300 per year. By contrast, in the United States an estimated 97 million birds are killed each year when they collide with buildings made of plate glass, 57 million are killed on highways each year; at least 3.8 million die annually from pollution and poisoning; and millions of birds are electrocuted each year by transmission and distribution lines carrying power produced by nuclear and coal power plants.

The technology is in place for a major expansion of wind power worldwide. Wind power is a virtually unlimited source of energy at favorable sites, and even excluding environmentally sensitive areas, the global potential of wind power is much higher than the current world electricity use. In theory, Argentina, Canada, Chile, China, Russia, and the United Kingdom could use wind to meet all of their energy needs. Wind power experts

project that by the middle of the twenty-first century wind power could supply more than 10 percent of the world's electricity and 10-25 percent of the electricity used in the United States.

Paragraph 1: Since 1980, the use of wind to produce electricity has been growing rapidly. In 1994 there were nearly 20,000 wind turbines worldwide, most grouped in clusters called wind farms that collectively produced 3,000 megawatts of electricity. Most were in Denmark (which got 3 percent of its electricity from wind turbines) and California (where 17,000 machines produced 1 percent of the state's electricity, enough to meet the residential needs of a city as large as San Francisco). In principle, all the power needs of the United States could be provided by exploiting the wind potential of just three states—North Dakota, South Dakota, and Texas.

1. Based on the information in paragraph 1, which of the following best explains the term wind farms?

- Farms using windmills to pump water
- Research centers exploring the uses of wind
- Types of power plant common in North Dakota
- Collections of wind turbines producing electric power

Paragraph 2: Large wind farms can be built in six months to a year and then easily expanded as needed. With a moderate to fairly high net energy yield, these systems emit no heat-trapping carbon dioxide or other air pollutants and need no water for cooling; manufacturing them produces little water pollution. The land under wind turbines can be used for grazing cattle and other purposes, and leasing land for wind turbines can provide extra income for farmers and ranchers.

2. The word "emit" in the passage is closest in meaning to

- use
- require
- release
- destroy

Paragraph 3: Wind power has a significant cost advantage over nuclear power and has become competitive with coal-fired power plants in many places. With new technological advances and mass production, projected cost declines should make wind power one of the world's cheapest ways to produce electricity. In the long run, electricity from large wind farms in remote areas might be used to make hydrogen gas from water during periods when there is less than peak demand for electricity. The hydrogen gas could then be fed into a storage system and used to generate electricity when additional or backup power is needed.

Paragraph 4: Wind power is most economical in areas with steady winds. In areas where the wind dies down, backup electricity from a utility company or from an energy storage system becomes necessary. Backup power could also be provided by linking wind farms with a solar cell, with conventional or pumped-storage hydropower, or with efficient natural-gas-burning turbines. Some drawbacks to wind farms include visual pollution and noise, although these can be overcome by improving their design and locating them in isolated areas.

3. Based on the information in paragraph 3 and paragraph 4, what can be inferred about the states of North Dakota, South Dakota, and Texas mentioned at the end of paragraph 1?

- They rely largely on coal-fired power plants.
- They contain remote areas where the winds rarely die down.
- Over 1 percent of the electricity in these states is produced by wind farms.
- Wind farms in these states are being expanded to meet the power needs of the United States.

4. According to paragraph 3, which of the following is true about periods when the demand for electricity is

relatively low?

- These periods are times when wind turbines are powered by hydrogen gas.
- These periods provide the opportunity to produce and store energy for future use.
- These periods create storage problems for all forms of power generation.
- These periods occur as often as periods when the demand for electricity is high.

5. In paragraph 4, the author states that in areas where winds are not steady

- power does not reach all customers
- wind farms cannot be used
- solar power is more appropriate
- backup systems are needed

6. According to paragraph 4, what can be inferred about the problems of visual pollution and noise associated with wind farms?

- Both problems affect the efficiency of wind farms.
- Possible solutions are known for both problems.
- Wind power creates more noise than visual pollution.
- People are more concerned about visual pollution than noise.

Paragraph 5: Large wind farms might also interfere with the flight patterns of migratory birds in certain areas, and they have killed large birds of prey (especially hawks, falcons, and eagles) that prefer to hunt along the same ridge lines that are ideal for wind turbines. The killing of birds of prey by wind turbines has pitted environmentalists who champion wildlife protection against environmentalists who promote renewable wind energy. Researchers are evaluating how serious this problem is and hope to find ways to eliminate or sharply reduce this problem. Some analysts also contend that the number of birds killed by wind turbines is dwarfed by birds killed by other human-related sources and by the potential loss of entire bird species from possible global warming. Recorded deaths of birds of prey and other birds in wind farms in the United States currently amount to no more than 300 per year. By contrast, in the United States an estimated 97 million birds are killed each year when they collide with buildings made of plate glass, 57 million are killed on highways each year; at least 3.8 million die annually from pollution and poisoning; and millions of birds are electrocuted each year by transmission and distribution lines carrying power produced by nuclear and coal power plants.

7. The phrase "this problem" in the passage refers to

- Interference with the flight patterns of migrating birds in certain areas
- Building ridge lines that are ideal for wind turbines
- The killing of birds of prey by wind turbines
- Meeting the demands of environmentalists who promote renewable wind energy

8. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Hawks, falcons, and eagles prefer to hunt along ridge lines, where wind turbines can kill large numbers of migratory birds.
- Wind turbines occasionally cause migratory birds to change their flight patterns and therefore may interfere with the areas where birds of prey prefer to hunt.
- Some of the best locations for large wind farms are places that may cause problems for migrating birds and birds of prey.
- Large wind farms in certain areas kill hawks, falcons, and eagles and thus might create a more ideal path for the flight of migratory birds.

9. In paragraph 5, why does the author give details about the estimated numbers of birds killed each year?

- To argue that wind farms should not be built along ridge lines
- To point out that the deaths of migratory birds exceed the deaths of birds of prey
- To explain why some environmentalists oppose wind energy
- To suggest that wind turbines result in relatively few bird deaths

10. The phrase “amount to” in the passage is closest in meaning to

- can identify
- change
- are reduced by
- total

Paragraph 6: The technology is in place for a major expansion of wind power worldwide. Wind power is a virtually unlimited source of energy at favorable sites, and even excluding environmentally sensitive areas, the global potential of wind power is much higher than the current world electricity use. In theory, Argentina, Canada, Chile, China, Russia, and the United Kingdom could use wind to meet all of their energy needs. Wind power experts project that by the middle of the twenty-first century wind power could supply more than 10 percent of the world’s electricity and 10-25 percent of the electricity used in the United States.

11. The word “project” in the passage is closest in meaning to

- estimate
- respond
- argue
- plan

12. Which of the following statements most accurately reflects the author’s opinion about wind energy?

- Wind energy production should be limited to large wind farms.
- The advantages of wind energy outweigh the disadvantages.
- The technology to make wind energy safe and efficient will not be ready until the middle of the twenty-first century.
- Wind energy will eventually supply many countries with most of their electricity.

Paragraph 1: Since 1980, the use of wind to produce electricity has been growing rapidly. ■ In 1994 there were nearly 20,000 wind turbines worldwide, most grouped in clusters called wind farms that collectively produced 3,000 megawatts of electricity. ■ Most were in Denmark (which got 3 percent of its electricity from wind turbines) and California (where 17,000 machines produced 1 percent of the state’s electricity, enough to meet the residential needs of a city as large as San Francisco). ■ In principle, all the power needs of the United States could be provided by exploiting the wind potential of just three states—North Dakota, South Dakota, and Texas. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Some companies in the power industry are aware of this wider possibility and are planning sizable wind-farm projects in states other than California.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some

sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

In the future, wind power is likely to become a major source of the world's energy supply.



Answer Choices

- Wind farms have already produced sufficient amounts of electricity to suggest that wind power could become an important source of electric power.
- Wind power has several advantages, such as low pollution and projected cost declines, compared to other energy sources.
- Responding to environmentalists concerned about birds killed by wind turbines, analysts point to other human developments that are even more dangerous to birds.
- The wind energy produced by just a small number of states could supply all of the power needs of the United States.
- Although wind power is not economical in areas with steady winds, alternative wind sources can be used to simulate wind power.
- Smaller countries, which use less electricity than large countries, are especially suited to use wind power to meet all their energy needs.

参考答案:

1. ○ 4
2. ○ 3
3. ○ 2
4. ○ 2
5. ○ 4
6. ○ 2
7. ○ 3
8. ○ 3
9. ○ 4
10. ○ 4
11. ○ 1
12. ○ 2
13. ○ 4

14. Wind farms have already...

Wind power has several advantages...

Responding to environmentalists...

风力发电

风力发电的运用从 **1980** 年起一直迅猛增长。**1994** 年，世界各地有近 **2** 万台风力涡轮机，大量风力涡轮机集中在一起组成风力发电厂，可共同发电 **3000** 兆瓦。风力发电厂主要集中在丹麦和美国的加利福尼亚州，丹麦全国电力的 **3%** 来源于风力发电，美国加州风力发电厂 **17000** 台涡轮机的发电量占全州电量的 **1%**，足以满足旧金山这种大城市的居住用电需求。全美的电力需求基本上都可以通过挖掘北达科他州、南达科他州和得克萨斯州的风力发电潜力来满足。

大型风力发电厂可在 **6** 个月至一年内建成，后续可根据需要随时扩建。发电厂里的设备在实现大量电能高产的同时，不仅做到了温室气体二氧化碳和其他空气污染物的零排放，并且无需用水对设备进行降温；同时，风力发电基本不会造成水资源污染。风力涡轮机的所在地还可用于放牛等其他用途，农民们和农场主可以通过土地出租供风力发电来增加额外收入。

风力发电和核电站发电相比具有明显的成本优势，在很多地方与燃煤发电也不相上下。随着新技术的进步和大规模生产，预期的成本下降会使风力发电成为世界上成本最低的发电方式。未来，偏远地区的大型风力发电厂发电量高于用电高峰需求量时，多出的电量可能会为从水中制造氢气提供支持。氢气可以存储起来，在需要额外或后备电源时用来发电。

在风源稳定的地区，风力发电是最经济。在风源不足的地方，需要稳定的备用电力来源，如电力公司、能量储存、太阳能电池、传统水力发电机和抽水蓄能，或者燃烧天然气的高效涡轮机。虽然风力发电会带来视觉污染和噪音，不过这些缺陷都可以通过设计的改善以及地点安排来弥补。

某些区域的大型风力发电厂很可能会影响候鸟的飞行方式，他们杀害了大型猛禽（尤其是老鹰、猎鹰和鹰），这些猛禽喜欢沿那些风力涡轮机所处的理想航线捕食。针对风力涡轮机对猛禽造成伤害的这一事实，主张保护野生动物的环保主义者和主张发展再生能源的环保主义者各持己见。研究人员还在对这个问题的严重程度进行评估，他们希望能想办法来消除或着大幅减少这个问题。有的分析家评论认为，由风力涡轮机导致的鸟类的死亡数目和由其他人为原因造成的死亡数目以及整个鸟类可能因全球变暖中而死亡数目相比是少之又少。据记载，美国风力发电厂伤害的猛禽和其他禽鸟的死亡数量每年不超过 **300** 只。相比之下，在美国估计每年有 **9700** 万禽鸟由于碰撞到建筑物的厚玻璃板而死亡，**5700** 万禽鸟死在高速公路上，至少有 **380** 万禽鸟死于污染和中毒，每年数以百万计的禽鸟在燃煤电厂和核电厂的输电和配电线缆上触电致死。

促使全球范围内风力发电应用扩张的技术已经到位。在合适的地点，风力发电几乎用之不尽取之不竭，即使排除这些环境敏感地区，全球潜在的风力发电量远高于目前的世界耗电总量。理论上来说，阿根廷、加拿大、智利、中国、俄罗斯和英国可以利用风力来满足他们所有的能源需求。风力发电专家估计，在二十一世纪中叶，全球超过 **10%** 的电力，及美国 **10-25%** 的电力需求都可通过风力发电来满足。

TPO-4

Deer Populations of the Puget Sound

Two species of deer have been prevalent in the Puget Sound area of Washington State in the Pacific Northwest of the United States. The black-tailed deer, a lowland, west-side cousin of the mule deer of eastern Washington, is now the most common. The other species, the Columbian white-tailed deer, in earlier times was common in the open prairie country; it is now restricted to the low, marshy islands and flood plains along the lower Columbia River.

Nearly any kind of plant of the forest understory can be part of a deer's diet. Where the forest inhibits the growth of grass and other meadow plants, the black-tailed deer browses on huckleberry, salal, dogwood, and almost any other shrub or herb. But this is fair-weather feeding. What keeps the black-tailed deer alive in the harsher seasons of plant decay and dormancy? One compensation for not hibernating is the built-in urge to migrate. Deer may move from high-elevation browse areas in summer down to the lowland areas in late fall. Even with snow on the ground, the high bushy understory is exposed; also snow and wind bring down leafy branches of cedar, hemlock, red alder, and other arboreal fodder.

The numbers of deer have fluctuated markedly since the entry of Europeans into Puget Sound country. The early explorers and settlers told of abundant deer in the early 1800s and yet almost in the same breath bemoaned the lack of this succulent game animal. Famous explorers of the north American frontier, Lewis and Clark arrived at the mouth of the Columbia River on November 14, 1805, in nearly starved circumstances. They had experienced great difficulty finding game west of the Rockies and not until the second of December did they kill their first elk. To keep 40 people alive that winter, they consumed approximately 150 elk and 20 deer. And when game moved out of the lowlands in early spring, the expedition decided to return east rather than face possible starvation. Later on in the early years of the nineteenth century, when Fort Vancouver became the headquarters of the Hudson's Bay Company, deer populations continued to fluctuate. David Douglas, Scottish botanical explorer of the 1830s, found a disturbing change in the animal life around the fort during the period between his first visit in 1825 and his final contact with the fort in 1832. A recent Douglas biographer states: "The deer which once picturesquely dotted the meadows around the fort were gone [in 1832], hunted to extermination in order to protect the crops."

Reduction in numbers of game should have boded ill for their survival in later times. A worsening of the plight of deer was to be expected as settlers encroached on the land, logging, burning, and clearing, eventually replacing a wilderness landscape with roads, cities, towns, and factories. No doubt the numbers of deer declined still further. Recall the fate of the Columbian white-tailed deer, now in a protected status. But for the black-tailed deer, human pressure has had just the opposite effect. Wildlife zoologist Helmut Buechner(1953), in reviewing the nature of biotic changes in Washington through recorded time, says that "since the early 1940s, the state has had more deer than at any other time in its history, the winter population fluctuating around approximately 320,000 deer (mule and black-tailed deer), which will yield about 65,000 of either sex and any age annually for an indefinite period."

The causes of this population rebound are consequences of other human actions. First, the major predators of deer—wolves, cougar, and lynx—have been greatly reduced in numbers. Second, conservation has been insured

by limiting times for and types of hunting. But the most profound reason for the restoration of high population numbers has been the fate of the forests. Great tracts of lowland country deforested by logging, fire, or both have become ideal feeding grounds of deer. In addition to finding an increase of suitable browse, like huckleberry and vine maple, Arthur Einarsen, longtime game biologist in the Pacific Northwest, found quality of browse in the open areas to be substantially more nutritive. The protein content of shade-grown vegetation, for example, was much lower than that for plants grown in clearings.

Paragraph 1: Two species of deer have been prevalent in the Puget Sound area of Washington State in the Pacific Northwest of the United States. The black-tailed deer, a lowland, west-side cousin of the mule deer of eastern Washington, is now the most common. The other species, the Columbian white-tailed deer, in earlier times was common in the open prairie country; it is now restricted to the low, marshy islands and flood plains along the lower Columbia River.

1. According to paragraph 1, which of the following is true of the white-tailed deer of Puget Sound?

- It is native to lowlands and marshes.
- It is more closely related to the mule deer of eastern Washington than to other types of deer.
- It has replaced the black-tailed deer in the open prairie.
- It no longer lives in a particular type of habitat that it once occupied.

Paragraph 2: Nearly any kind of plant of the forest understory can be part of a deer's diet. Where the forest inhibits the growth of grass and other meadow plants, the black-tailed deer browses on huckleberry, salal, dogwood, and almost any other shrub or herb. But this is fair-weather feeding. What keeps the black-tailed deer alive in the harsher seasons of plant decay and dormancy? One compensation for not hibernating is the built-in urge to migrate. Deer may move from high-elevation browse areas in summer down to the lowland areas in late fall. Even with snow on the ground, the high bushy understory is exposed; also snow and wind bring down leafy branches of cedar, hemlock, red alder, and other arboreal fodder.

2. It can be inferred from the discussion in paragraph 2 that winter conditions

- cause some deer to hibernate
- make food unavailable in the highlands for deer
- make it easier for deer to locate understory plants
- prevent deer from migrating during the winter

3. The word "inhibits" in the passage is closest in meaning to

- consists of
- combines
- restricts
- establishes

Paragraph 3: The numbers of deer have fluctuated markedly since the entry of Europeans into Puget Sound country. The early explorers and settlers told of abundant deer in the early 1800s and yet almost in the same breath bemoaned the lack of this succulent game animal. Famous explorers of the north American frontier, Lewis and Clark arrived at the mouth of the Columbia River on November 14, 1805, in nearly starved circumstances. They had experienced great difficulty finding game west of the Rockies and not until the second of December did they kill their first elk. To keep 40 people alive that winter, they consumed approximately 150 elk and 20 deer. And when game moved out of the lowlands in early spring, the expedition decided to return east rather than face possible starvation. Later on in the early years of the nineteenth century, when Fort Vancouver became the headquarters of the Hudson's Bay Company, deer populations continued to fluctuate. David Douglas, Scottish

botanical explorer of the 1830s, found a disturbing change in the animal life around the fort during the period between his first visit in 1825 and his final contact with the fort in 1832. A recent Douglas biographer states: "The deer which once picturesquely dotted the meadows around the fort were gone [in 1832], hunted to extermination in order to protect the crops."

4. The phrase "in the same breath" in the passage is closest in meaning to

- impatiently
- humorously
- continuously
- immediately

5. The author tells the story of the explorers Lewis and Clark in paragraph 3 in order to illustrate which of the following points?

- The number of deer within the Puget Sound region has varied over time.
- Most of the explorers who came to the Puget Sound area were primarily interested in hunting game.
- There was more game for hunting in the East of the United States than in the West.
- Individual explorers were not as successful at locating games as were the trading companies.

6. According to paragraph 3, how had Fort Vancouver changed by the time David Douglas returned in 1832?

- The fort had become the headquarters for the Hudson's Bay Company.
- Deer had begun populating the meadows around the fort.
- Deer populations near the fort had been destroyed.
- Crop yields in the area around the fort had decreased.

Paragraph 4: Reduction in numbers of game should have boded ill for their survival in later times. A worsening of the plight of deer was to be expected as settlers encroached on the land, logging, burning, and clearing, eventually replacing a wilderness landscape with roads, cities, towns, and factories. No doubt the numbers of deer declined still further. Recall the fate of the Columbian white-tailed deer, now in a protected status. But for the black-tailed deer, human pressure has had just the opposite effect. Wildlife zoologist Helmut Buechner(1953), in reviewing the nature of biotic changes in Washington through recorded time, says that "since the early 1940s, the state has had more deer than at any other time in its history, the winter population fluctuating around approximately 320,000 deer (mule and black-tailed deer), which will yield about 65,000 of either sex and any age annually for an indefinite period."

7. Why does the author ask readers to recall "the fate of the Columbian white-tailed deer" in the discussion of changes in the wilderness landscape?

- To provide support for the idea that habitat destruction would lead to population decline
- To compare how two species of deer caused biotic changes in the wilderness environment
- To provide an example of a species of deer that has successfully adapted to human settlement
- To argue that some deer species must be given a protected status

8. The phrase "indefinite period" in the passage is closest in meaning to period

- whose end has not been determined
- that does not begin when expected
- that lasts only briefly
- whose importance remains unknown

9. Which of the following statements about deer populations is supported by the information in paragraph 4?

-
- Deer populations reached their highest point during the 1940s and then began to decline.
 - The activities of settlers contributed in unexpected ways to the growth of some deer populations in later times.
 - The cleaning of wilderness land for construction caused biotic changes from which the black-tailed deer population has never recovered.
 - Since the 1940s the winter populations of deer have fluctuated more than the summer populations have.

Paragraph 5: The causes of this population **rebound** are consequences of other human actions. First, the major predators of deer—wolves, cougar, and lynx—have been greatly reduced in numbers. Second, conservation has been insured by limiting times for and types of hunting. But the most profound reason for the restoration of high population numbers has been the fate of the forests. Great tracts of lowland country deforested by logging, fire, or both have become ideal feeding grounds of deer. **In addition to finding an increase of suitable browse, like huckleberry and vine maple, Arthur Einarsen, longtime game biologist in the Pacific Northwest, found quality of browse in the open areas to be substantially more nutritive.** The protein content of shade-grown vegetation, for example, was much lower than that for plants grown in clearings.

10. The word “**rebound**” in the passage is closest in meaning to
- decline
 - recovery
 - exchange
 - movement
11. Which of the sentences below best expresses the essential information in the **highlighted sentence** in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
- Arthur Einarsen’s longtime family with the Pacific Northwest helped him discover areas where deer had an increase in suitable browse.
 - Arthur Einarsen found that deforested feeding grounds provided deer with more and better food.
 - Biologist like Einarsen believe it is important to find additional open areas with suitable browse for deer to inhabit.
 - According to Einarsen, huckleberry and vine maple are examples of vegetation that may someday improve the nutrition of deer in the open areas of the Pacific Northwest.
12. Which of the following is NOT mentioned in paragraph 5 as a factor that has increased deer populations?
- A reduction in the number of predators
 - Restrictions on hunting
 - The effects of logging and fire
 - Laws that protected feeding grounds of deer

Paragraph 2: Nearly any kind of plant of the forest understory can be part of a deer's diet. Where the forest inhibits the growth of grass and other meadow plants, the black-tailed deer browses on huckleberry, salal, dogwood, and almost any other shrub or herb. But this is fair-weather feeding. What keeps the black-tailed deer alive in the harsher seasons of plant decay and dormancy? One compensation for not hibernating is the built-in urge to migrate. ■ Deer may move from high-elevation browse areas in summer down to the lowland areas in late fall. ■ Even with snow on the ground, the high bushy understory is exposed; also snow and wind bring down leafy branches of cedar, hemlock, red alder, and other arboreal fodder.

Paragraph 3: ■ The numbers of deer have fluctuated markedly since the entry of Europeans into Puget Sound country. ■ The early explorers and settlers told of abundant deer in the early 1800s and yet almost in the same breath bemoaned the lack of this succulent game animal. Famous explorers of the north American frontier,

Lewis and Clark arrived at the mouth of the Columbia River on November 14, 1805, in nearly starved circumstances. They had experienced great difficulty finding game west of the Rockies and not until the second of December did they kill their first elk. To keep 40 people alive that winter, they consumed approximately 150 elk and 20 deer. And when game moved out of the lowlands in early spring, the expedition decided to return east rather than face possible starvation. Later on in the early years of the nineteenth century, when Fort Vancouver became the headquarters of the Hudson's Bay Company, deer populations continued to fluctuate. David Douglas, Scottish botanical explorer of the 1830s, found a disturbing change in the animal life around the fort during the period between his first visit in 1825 and his final contact with the fort in 1832. A recent Douglas biographer states: "The deer which once picturesquely dotted the meadows around the fort were gone [in 1832], hunted to extermination in order to protect the crops."

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

There food is available and accessible throughout the winter.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Deer in the Puget Sound area eat a wide variety of foods and migrate seasonally food.

-
-
-

Answer Choices

- The balance of deer species in the Puget Sound region has changed over time, with the Columbian white-tailed deer now outnumbering other types of deer.
- Deer populations naturally fluctuate, but early settlers in the Puget Sound environment caused an overall decline in the deer populations of the areas at that time.
- In the long term, black-tailed deer in the Puget Sound area have benefitted from human activities through the elimination of their natural predators, and more and better food in deforested areas.
- Because Puget Sound deer migrate, it was and still remains difficult to determine accurately how many deer are living at any one time in the western United States.
- Although it was believed that human settlement of the American West would cause the total number of deer to decrease permanently, the opposite has occurred for certain types of deer.
- Wildlife biologists have long been concerned that the loss of forests may create nutritional deficiencies for deer.

参考答案:

1. ○4
2. ○ 2
3. ○ 3
4. ○4
5. ○1
6. ○3
7. ○1
8. ○ 1
9. ○2
10. ○ 2
11. ○2
12. ○4
13. ○2
14. Deer populations naturally...
In the long term...
Although it was believed...

普吉特海湾的鹿群

在太平洋西北区的美国华盛顿州，有两种鹿在普吉特海湾非常普遍。黑尾鹿是华盛顿东部杂交鹿在西部的表亲，它们生活在低地。另一种哥伦比亚白尾鹿，从前在开阔的草原上很常见，而现在只能在低矮的沼泽岛屿地带和哥伦比亚河下游的河滩地区才能看到它们。

森林里，几乎任何植物都是鹿的食物。在森林抑制草和其它草地植物生长的地方，黑尾鹿可以吃越橘、北美白珠树、多花栎木和其他几乎所有灌木和草；但这些只能在好天气里才能吃得到；在植物衰败、隐匿的严寒季节，黑尾鹿们是如何过冬的呢？避免冬眠的一种方法就是天生的迁徙习性。它们会在夏天迁徙到高海拔觅食区直到秋天结束再回到低地。即便地面还有残雪，高的灌木也会露出来；风雪天气会把雪松、铁杉、红桤木和其它乔木多叶的树枝带下来。

自从欧洲人进入了普吉特海湾，鹿群的数量发生了显著的变化。早期的探险家和殖民者说起在十九世纪早期那儿有大量的鹿群，与此同时惋惜现在这种诱人动物的稀少。著名的北美探险先驱者刘易斯和克拉克在落基山西部经历种种困难，并且直到第二年十二月他们才杀死了第一只麋鹿。为了让 40 人在冬天里存活，他们消耗了 150 只麋鹿和 20 只小鹿。当猎物在早春时期迁徙出了低地，远征队决定返回东部而不是去面对潜在的饥饿。此后在十九世纪最初几年里，温哥华堡成为哈德逊湾公司的总部，鹿的数量持续波动。十九世纪三十年代，苏格兰植物学探险家大卫·道格拉斯发现了他在 1825 年第一次的探访和 1832 年的最后接触之间出现在温哥华堡附近令人不安的变化。在道格拉斯近期的传记中陈述到：在 1832 年曾经如画般分布在温哥华堡附近草地上的鹿群已经消失了，为了保护农作物猎杀致灭绝。

鹿群数量的减少预示了它们今后生存的艰辛。鹿群的处境正在恶化，它们能期待的却是殖民者入侵它们的领地，人类在他们生活的土地上进行采伐、焚烧，清除障碍，最终将荒野风景变成公路、城市、城镇和工厂。毋庸置疑，鹿群的数量进一步减少。回想起来，哥伦比亚白尾鹿的命运，现在已经处于被保护状态。而对黑尾鹿来说，人类的压力反而产生了相反的效果。野生动物学家赫尔穆特·布希纳（1953）通过已有记录评论了华盛顿地区生物的自然变化，他说：二十世纪 40 年代早期，美国拥有比以往任何历史时期都多的鹿群，鹿群冬季的数量在接近 320000 只鹿（杂交和黑尾鹿）左右波动，在此之后的每一年不同年龄段的公鹿和母鹿数量分别会增加至 65000 只。

这种鹿群数量的反弹是由于人类其他活动造成。首先，狼、美洲豹和山猫等鹿群的主要猎食者急剧减少。其次，通过限制捕猎时间和捕猎种类来保护鹿群。但鹿群数量恢复的主要原因在于森林减少。大部分的低地的树木被砍伐、焚烧，进而成为了鹿群理想的生活场地。以便他们去寻找更适合的嫩叶，比如越橘类和枫叶。太平洋西北的生物学家亚瑟·埃纳森发现在空旷地区的高质量的嫩叶大部分都是很有营养的，就像在遮蔽中生长的植物，他们所包含的蛋白质比那些在空旷地区生长的植物蛋白质更低。

Cave Art in Europe

The earliest discovered traces of art are beads and carvings, and then paintings, from sites dating back to the Upper Paleolithic period. We might expect that early artistic efforts would be crude, but the cave paintings of Spain and southern France show a marked degree of skill. So do the naturalistic paintings on slabs of stone excavated in southern Africa. Some of those slabs appear to have been painted as much as 28,000 years ago, which suggests that painting in Africa is as old as painting in Europe. But painting may be even older than that. The early Australians may have painted on the walls of rock shelters and cliff faces at least 30,000 years ago, and maybe as much as 60,000 years ago.

The researchers Peter Ucko and Andree Rosenfeld identified three principal locations of paintings in the caves of western Europe: (1) in obviously inhabited rock shelters and cave entrances; (2) in galleries immediately off the inhabited areas of caves; and (3) in the inner reaches of caves, whose difficulty of access has been interpreted by some as a sign that magical-religious activities were performed there.

The subjects of the paintings are mostly animals. The paintings rest on bare walls, with no backdrops or environmental trappings. Perhaps, like many contemporary peoples, Upper Paleolithic men and women believed that the drawing of a human image could cause death or injury, and if that were indeed their belief, it might explain why human figures are rarely depicted in cave art. Another explanation for the focus on animals might be that these people sought to improve their luck at hunting. This theory is suggested by evidence of chips in the painted figures, perhaps made by spears thrown at the drawings. But if improving their hunting luck was the chief motivation for the paintings, it is difficult to explain why only a few show signs of having been speared. Perhaps the paintings were inspired by the need to increase the supply of animals. Cave art seems to have reached a peak toward the end of the Upper Paleolithic period, when the herds of game were decreasing.

The particular symbolic significance of the cave paintings in southwestern France is more explicitly revealed, perhaps, by the results of a study conducted by researchers Patricia Rice and Ann Paterson. The data they present suggest that the animals portrayed in the cave paintings were mostly the ones that the painters preferred for meat and for materials such as hides. For example, wild cattle (bovines) and horses are portrayed more often than we would expect by chance, probably because they were larger and heavier (meatier) than other animals in the environment. In addition, the paintings mostly portray animals that the painters may have feared the most because of their size, speed, natural weapons such as tusks and horns, and the unpredictability of their behavior. That is, mammoths, bovines, and horses are portrayed more often than deer and reindeer. Thus, the paintings are consistent with the idea that the art is related to the importance of hunting in the economy of Upper Paleolithic people. Consistent with this idea, according to the investigators, is the fact that the art of the cultural period that followed the Upper Paleolithic also seems to reflect how people got their food. But in that period, when getting food no longer depended on hunting large game animals (because they were becoming extinct), the art ceased to focus on portrayals of animals.

Upper Paleolithic art was not confined to cave paintings. Many shafts of spears and similar objects were decorated with figures of animals. The anthropologist Alexander Marshack has an interesting interpretation of some of the engravings made during the Upper Paleolithic. He believes that as far back as 30,000 B.C., hunters may have used a system of notation, engraved on bone and stone, to mark phases of the Moon. If this is true, it would mean that Upper Paleolithic people were capable of complex thought and were consciously aware of their environment. In addition to other artworks, figurines representing the human female in exaggerated form have

also been found at Upper Paleolithic sites. It has been suggested that these figurines were an ideal type or an expression of a desire for fertility.

Paragraph 1: The earliest discovered traces of art are beads and carvings, and then paintings, from sites dating back to the Upper Paleolithic period. We might expect that early artistic efforts would be crude, but the cave paintings of Spain and southern France show a marked degree of skill. So do the naturalistic paintings on slabs of stone excavated in southern Africa. Some of those slabs appear to have been painted as much as 28,000 years ago, which suggests that painting in Africa is as old as painting in Europe. But painting may be even older than that. The early Australians may have painted on the walls of rock shelters and cliff faces at least 30,000 years ago, and maybe as much as 60,000 years ago.

1. The word "marked" in the passage is closest in meaning to
 - considerable
 - surprising
 - limited
 - adequate
2. Paragraph 1 supports which of the following statements about painting in Europe?
 - It is much older than painting in Australia.
 - It is as much as 28,000 years old.
 - It is not as old as painting in southern Africa.
 - It is much more than 30,000 years old.

Paragraph 2: The researchers Peter Ucko and Andree Rosenfeld identified three principal locations of paintings in the caves of western Europe: (1) in obviously inhabited rock shelters and cave entrances; (2) in galleries immediately off the inhabited areas of caves; and (3) in the inner reaches of caves, whose difficulty of access has been interpreted by some as a sign that magical-religious activities were performed there.

3. The word "principal" in the passage is closest in meaning to
 - major
 - likely
 - well protected
 - distinct
4. According to paragraph 2, what makes some researchers think that certain cave paintings were connected with magical-religious activities?
 - The paintings were located where many people could easily see them, allowing groups of people to participate in the magical-religious activities.
 - Upper Paleolithic people shared similar beliefs with contemporary peoples who use paintings of animals in their magical-religious rituals.
 - Evidence of magical-religious activities has been found in galleries immediately off the inhabited areas of caves.
 - The paintings were found in hard-to-reach places away from the inhabited parts of the cave.

Paragraph 3: The subjects of the paintings are mostly animals. The paintings rest on bare walls, with no backdrops or environmental trappings. Perhaps, like many contemporary peoples, Upper Paleolithic men and women believed that the drawing of a human image could cause death or injury, and if that were indeed their

belief, it might explain why human figures are rarely depicted in cave art. Another explanation for the focus on animals might be that these people sought to improve their luck at hunting. This theory is suggested by evidence of chips in the painted figures, perhaps made by spears thrown at the drawings. But if improving their hunting luck was the chief motivation for the paintings, it is difficult to explain why only a few show signs of having been speared. Perhaps the paintings were inspired by the need to increase the supply of animals. Cave art seems to have reached a peak toward the end of the Upper Paleolithic period, when the herds of game were decreasing.

5. The word “trappings” in the passage is closest in meaning to

- conditions
- problems
- influences
- decorations

6. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Upper Paleolithic people, like many contemporary peoples, believed that if they drew a human image in their cave art, it would cause death or injury.
- Many contemporary people believe that the drawing of a human image can cause death or injury, so they, like Upper Paleolithic people, rarely depicted human figures in their cave art.
- If Upper Paleolithic people, like many contemporary peoples, believed that the drawing of a human image could cause death or injury, this belief might explain why human figures are rarely depicted in cave art.
- Although many contemporary peoples believe that the drawing of a human image can cause death or injury, researchers cannot explain why Upper Paleolithic people rarely depicted human figures in their cave art.

7. According to paragraph 3, scholars explained chips in the painted figures of animals by proposing that

- Upper Paleolithic artists used marks to record the animals they had seen
- the paintings were inspired by the need to increase the supply of animals for hunting
- the artists had removed rough spots on the cave walls
- Upper Paleolithic people used the paintings to increase their luck at hunting

8. Why does the author mention that Upper Paleolithic cave art seemed to have “reached a peak toward the end of the Upper Paleolithic period, when the herds of game were decreasing”?

- To argue that Upper Paleolithic art ceased to include animals when herds of game became scarce
- To provide support for the idea that the aim of the paintings was to increase the supply of animals for hunting
- To emphasize the continued improvement in the quality of cave art throughout the Upper Paleolithic period
- To show the direct connection between the decrease in herds of game and the end of the Upper Paleolithic period

Paragraph 4: The particular symbolic significance of the cave paintings in southwestern France is more explicitly revealed, perhaps, by the results of a study conducted by researchers Patricia Rice and Ann Paterson. The data they present suggest that the animals portrayed in the cave paintings were mostly the ones that the painters preferred for meat and for materials such as hides. For example, wild cattle (bovines) and horses are portrayed more often than we would expect by chance, probably because they were larger and heavier (meatier) than other animals in the environment. In addition, the paintings mostly portray animals that the painters may have feared the most because of their size, speed, natural weapons such as tusks and horns, and the

unpredictability of their behavior. That is, mammoths, bovines, and horses are portrayed more often than deer and reindeer. Thus, the paintings are consistent with the idea that the art is related to the importance of hunting in the economy of Upper Paleolithic people. Consistent with this idea, according to the investigators, is the fact that the art of the cultural period that followed the Upper Paleolithic also seems to reflect how people got their food. But in that period, when getting food no longer depended on hunting large game animals (because they were becoming extinct), the art ceased to focus on portrayals of animals.

9. According to paragraph 4, scholars believe that wild cattle, horses, and mammoths are the animals most frequently portrayed in cave paintings for all of the following reasons EXCEPT:

- These animals were difficult to hunt because their unpredictable behavior.
- People preferred these animals for their meat and for their skins.
- The painters admired the beauty of these large animals.
- People feared these animals because of their size and speed.

10. According to paragraph 4, which of the following may best represent the attitude of hunters toward deer and reindeer in the Upper Paleolithic period?

- Hunters did not fear deer and reindeers as much as they did large game animals such as horses and mammoths.
- Hunters were not interested in hunting deer and reindeer because of their size and speed.
- Hunters preferred the meat and hides of deer and reindeer to those of other animals.
- Hunters avoided deer and reindeer because of their natural weapons, such as horns.

11. According to paragraph 4, what change is evident in the art of the period following the Upper Paleolithic?

- This new art starts to depict small animals rather than large ones.
- This new art ceases to reflect the ways in which people obtained their food.
- This new art no longer consists mostly of representations of animals.
- This new art begins to show the importance of hunting to the economy.

Paragraph 5: Upper Paleolithic art was not confined to cave paintings. Many shafts of spears and similar objects were decorated with figures of animals. The anthropologist Alexander Marshack has an interesting interpretation of some of the engravings made during the Upper Paleolithic. He believes that as far back as 30,000 B.C., hunters may have used a system of notation, engraved on bone and stone, to mark phases of the Moon. If this is true, it would mean that Upper Paleolithic people were capable of complex thought and were consciously aware of their environment. In addition to other artworks, figurines representing the human female in exaggerated form have also been found at Upper Paleolithic sites. It has been suggested that these figurines were an ideal type or an expression of a desire for fertility.

12. According to paragraph 5, which of the following has been used as evidence to suggest that Upper Paleolithic people were capable of complex thought and conscious awareness of their environment?

- They engraved animal figures on the shafts of spears and other objects.
- They may have used engraved signs to record the phases of the Moon.
- Their figurines represented the human female in exaggerated form.
- They may have used figurines to portray an ideal type or to express a desire for fertility.

Paragraph 3: The subjects of the paintings are mostly animals. The paintings rest on bare walls, with no backdrops or environmental trappings. Perhaps, like many contemporary peoples, Upper Paleolithic men and women believed that the drawing of a human image could cause death or injury, and if that were indeed their belief, it might explain why human figures are rarely depicted in cave art. Another explanation for the focus on

animals might be that these people sought to improve their luck at hunting. ■ This theory is suggested by evidence of chips in the painted figures, perhaps made by spears thrown at the drawings. ■ But if improving their hunting luck was the chief motivation for the paintings, it is difficult to explain why only a few show signs of having been speared. ■ Perhaps the paintings were inspired by the need to increase the supply of animals. Cave art seems to have reached a peak toward the end of the Upper Paleolithic period, when the herds of game were decreasing. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Therefore, if the paintings were connected with hunting, some other explanation is needed.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that explain the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Upper Paleolithic cave paintings in Western Europe are among humanity's earliest artistic efforts.

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-
-

Answer choices

- Researchers have proposed several different explanations for the fact that animals were the most common subjects in the cave paintings.
- The art of the cultural period that followed the Upper Paleolithic ceased to portray large game animals and focused instead on the kinds of animals that people of that period preferred to hunt.
- Some researchers believe that the paintings found in France provide more explicit evidence of their symbolic significance than those found in Spain, southern Africa, and Australia.
- The cave paintings focus on portraying animals without also depicting the natural environments in which these animals are typically found.
- Some researchers have argued that the cave paintings mostly portrayed large animals that provided Upper Paleolithic people with meat and materials.
- Besides cave paintings, Upper Paleolithic people produced several other kinds of artwork, one of which has been thought to provide evidence of complex thought.

参考答案:

1. ○1
2. ○2
3. ○1
4. ○4
5. ○4
6. ○3
7. ○4
8. ○2
9. ○3
10. ○1
11. ○3
12. ○2
13. ○3
14. Researchers have proposed...
Some researchers believe...
Besides cave paintings...

欧洲的岩洞艺术

迄今为止，发现的最早的并且有迹可寻的工艺品是珠链、雕刻还有是绘画，人类在旧石器时代晚期的遗址上发现了它们。虽然，我们可能会认为早期的艺术成就都是不成熟的，但西班牙与法国南部的岩洞画显示出了高超的技艺，在非洲南部发掘出的自然石板画也是如此。其中的一些石板画看上去像是在**28000**年前画出的，这表明非洲绘画与欧洲绘画一样时间久远，但可能更早些。至少**30000**年前，也可能追溯至**60000**年前，那会儿早期澳洲人就已经在岩石遮蔽的墙上和悬崖断面上作画了。

研究人员彼特·阿寇 和安德烈·罗森菲尔德指出西欧洞画的三个主要地点：**(1)**在明显有遮蔽可供人类居住的岩石和洞穴入口处，**(2)**在居住的洞穴一出门的走廊上，**(3)**在洞穴所能及的最深处，有人认为之所以在最深处作画是因为当时的人们曾在这里进行神秘的宗教活动。

这些绘画的主题大部分都是动物。这些画画在裸露的岩石上，没有任何背景和环境装饰。或许，同许多当代人一样，后石器时代的人们也相信画人物像会引起伤害或死亡。如果这确实是他们的信念，那就解释了为什么在洞穴绘画中很少描绘人物。对于画中以动物题材为主的另一个解释是，人们在探索如何提高打猎的命中率。墙上所画的动物身上有一些伤口，很可能是原始人向它们扔矛时留下的，这个证据也证实了以上判断。但如果提高打猎命中率真的是岩壁画的主要动机，那么就很难解释为什么只有少数画上有被矛戳过的痕迹。或许是出于增加猎物的需求而画的画。在后期旧石器时代猎群数量减少时，岩洞画艺术似乎达到了顶峰。

也许研究者帕特丽夏·赖斯和安·派特森所做研究的结果更清楚地揭示了法国东南部的岩洞画的特殊象征性意义。研究显示，绘画者喜欢食用的动物或喜欢用作兽皮的动物是岩洞画中经常被描绘的动物。比如，野牛（牛）和马的出现比我们预料的更为频繁，可能因为它们比其它动物更大更沉（肉更多）。另外，画作中主要描绘了绘画者害怕的动物，它们的体形、速度、与生俱来的武器如长牙和角，以及它们行为的不可预知性都令绘画者感到恐惧。于是，和鹿、驯鹿相比，猛犸、牛和马会更经常画在墙上。因此，在后旧石器时代人的经济中，岩洞艺术与打猎的重要性有关，这些画作也与这个观点相符合。看起来接下来的后旧石器时代文化期的艺术也反映了人们如何得到食物，根据调查者的研究，这一事实也与前文的想法一致。但在那个时期，当不再依附于猎取大型猎物获得食物时（因为它们开始变得稀少），岩洞艺术便不再以描绘动物为主了。

后期旧石器时代的艺术不仅仅局限于洞穴绘画。许多矛杆和与其类似的东西上都画了动物作为装饰。人类学家亚历山大·马斯哈克对后旧石器时代时期的一些雕刻品有一个有趣的解释。他认为在公元前**30000**年，猎人们可能使用了一种刻在骨头或石头上的标志法来标记不同的月相。如果此论述是真的，这就意味着后旧石器时代的人们已经有了复杂的思维并对他们的环境有了一个理性的认识。人们还在后期旧石器时代的遗址上发现了以夸张的形式描绘妇女的小雕塑。这也暗示了这些小雕塑是一种理想型，或者说表达了当时的人类期望多生育的愿望。

Petroleum Resources

Petroleum, consisting of crude oil and natural gas, seems to originate from organic matter in marine sediment. Microscopic organisms settle to the seafloor and accumulate in marine mud. The organic matter may partially decompose, using up the dissolved oxygen in the sediment. As soon as the oxygen is gone, decay stops and the remaining organic matter is preserved.

Continued sedimentation—the process of deposits' settling on the sea bottom—buries the organic matter and subjects it to higher temperatures and pressures, which convert the organic matter to oil and gas. As muddy sediments are pressed together, the gas and small droplets of oil may be squeezed out of the mud and may move into sandy layers nearby. Over long periods of time (millions of years), accumulations of gas and oil can collect in the sandy layers. Both oil and gas are less dense than water, so they generally tend to rise upward through water-saturated rock and sediment.

Oil pools are valuable underground accumulations of oil, and oil fields are regions underlain by one or more oil pools. When an oil pool or field has been discovered, wells are drilled into the ground. Permanent towers, called derricks, used to be built to handle the long sections of drilling pipe. Now portable drilling machines are set up and are then dismantled and removed. When the well reaches a pool, oil usually rises up the well because of its density difference with water beneath it or because of the pressure of expanding gas trapped above it. Although this rise of oil is almost always carefully controlled today, spouts of oil, or gushers, were common in the past. Gas pressure gradually dies out, and oil is pumped from the well. Water or steam may be pumped down adjacent wells to help push the oil out. At a refinery, the crude oil from underground is separated into natural gas, gasoline, kerosene, and various oils. Petrochemicals such as dyes, fertilizer, and plastic are also manufactured from the petroleum.

As oil becomes increasingly difficult to find, the search for it is extended into more-hostile environments. The development of the oil field on the North Slope of Alaska and the construction of the Alaska pipeline are examples of the great expense and difficulty involved in new oil discoveries. Offshore drilling platforms extend the search for oil to the ocean's continental shelves—those gently sloping submarine regions at the edges of the continents. More than one-quarter of the world's oil and almost one-fifth of the world's natural gas come from offshore, even though offshore drilling is six to seven times more expensive than drilling on land. A significant part of this oil and gas comes from under the North Sea between Great Britain and Norway.

Of course, there is far more oil underground than can be recovered. It may be in a pool too small or too far from a potential market to justify the expense of drilling. Some oil lies under regions where drilling is forbidden, such as national parks or other public lands. Even given the best extraction techniques, only about 30 to 40 percent of the oil in a given pool can be brought to the surface. The rest is far too difficult to extract and has to remain underground.

Moreover, getting petroleum out of the ground and from under the sea and to the consumer can create environmental problems anywhere along the line. Pipelines carrying oil can be broken by faults or landslides, causing serious oil spills. Spillage from huge oil-carrying cargo ships, called tankers, involved in collisions or accidental groundings (such as the one off Alaska in 1989) can create oil slicks at sea. Offshore platforms may also lose oil, creating oil slicks that drift ashore and foul the beaches, harming the environment. Sometimes, the ground at an oil field may subside as oil is removed. The Wilmington field near Long Beach, California, has subsided nine meters in 50 years; protective barriers have had to be built to prevent seawater from flooding the

area. Finally, the refining and burning of petroleum and its products can cause air pollution. Advancing technology and strict laws, however, are helping control some of these adverse environmental effects.

Paragraph 1: Petroleum, consisting of crude oil and natural gas, seems to originate from organic matter in marine sediment. Microscopic organisms settle to the seafloor and accumulate in marine mud. The organic matter may partially decompose, using up the dissolved oxygen in the sediment. As soon as the oxygen is gone, decay stops and the remaining organic matter is preserved.

1. The word “accumulate” in the passage is closest in meaning to
 - grow up
 - build up
 - spread out
 - break apart
2. According to paragraph 1, which of the following is true about petroleum formation?
 - Microscopic organisms that live in mud produce crude oil and natural gas.
 - Large amounts of oxygen are needed for petroleum formation to begin.
 - Petroleum is produced when organic material in sediments combines with decaying marine organisms.
 - Petroleum formation appears to begin in marine sediments where organic matter is present.

Paragraph 1: Petroleum, consisting of crude oil and natural gas, seems to originate from organic matter in marine sediment. Microscopic organisms settle to the seafloor and accumulate in marine mud. The organic matter may partially decompose, using up the dissolved oxygen in the sediment. As soon as the oxygen is gone, decay stops and the remaining organic matter is preserved.

Paragraph 2: Continued sedimentation—the process of deposits’ settling on the sea bottom—buries the organic matter and subjects it to higher temperatures and pressures, which convert the organic matter to oil and gas. As muddy sediments are pressed together, the gas and small droplets of oil may be squeezed out of the mud and may move into sandy layers nearby. Over long periods of time (millions of years), accumulations of gas and oil can collect in the sandy layers. Both oil and gas are less dense than water, so they generally tend to rise upward through water-saturated rock and sediment.

3. In paragraphs 1 and 2, the author’s primary purpose is to
 - describe how petroleum is formed
 - explain why petroleum formation is a slow process
 - provide evidence that a marine environment is necessary for petroleum formation
 - show that oil commonly occurs in association with gas
4. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
 - Higher temperatures and pressures promote sedimentation, which is responsible for petroleum formation.
 - Deposits of sediments on top of organic matter increase the temperature of and pressure on the matter.
 - Increase pressure and heat from the weight of the sediment turn the organic remains into petroleum.
 - The remains of microscopic organisms transform into petroleum once they are buried under mud.

Paragraph 3: Oil pools are valuable underground accumulations of oil, and oil fields are regions underlain by one or more oil pools. When an oil pool or field has been discovered, wells are drilled into the ground. Permanent

towers, called derricks, used to be built to handle the long sections of drilling pipe. Now portable drilling machines are set up and are then dismantled and removed. When the well reaches a pool, oil usually rises up the well because of its density difference with water beneath it or because of the pressure of expanding gas trapped above it. Although this rise of oil is almost always carefully controlled today, spouts of oil, or gushers, were common in the past. Gas pressure gradually dies out, and oil is pumped from the well. Water or steam may be pumped down adjacent wells to help push the oil out. At a refinery, the crude oil from underground is separated into natural gas, gasoline, kerosene, and various oils. Petrochemicals such as dyes, fertilizer, and plastic are also manufactured from the petroleum.

5. The word “adjacent” in the passage is closest in meaning to
- nearby
 - existing
 - special
 - deep
6. Which of the following can be inferred from paragraph 3 about gushers?
- They make bringing the oil to the surface easier.
 - They signal the presence of huge oil reserves.
 - They waste more oil than they collect.
 - They are unlikely to occur nowadays.

Paragraph 4: As oil becomes increasingly difficult to find, the search for it is extended into more-hostile environments. The development of the oil field on the North Slope of Alaska and the construction of the Alaska pipeline are examples of the great expense and difficulty involved in new oil discoveries. Offshore drilling platforms extend the search for oil to the ocean’s continental shelves—those gently sloping submarine regions at the edges of the continents. More than one-quarter of the world’s oil and almost one-fifth of the world’s natural gas come from offshore, even though offshore drilling is six to seven times more expensive than drilling on land. A significant part of this oil and gas comes from under the North Sea between Great Britain and Norway.

7. Which of the following strategies for oil exploration is described in paragraph 4?
- Drilling under the ocean’s surface
 - Limiting drilling to accessible locations
 - Using highly sophisticated drilling equipment
 - Constructing technologically advanced drilling platforms
8. What does the development of the Alaskan oil field mentioned in paragraph 4 demonstrate?
- More oil is extracted from the sea than from land.
 - Drilling for oil requires major financial investments.
 - The global demand for oil has increased over the years.
 - The North Slope of Alaska has substantial amounts of oil.
9. The word “sloping” in the passage is closest in meaning to
- shifting
 - inclining
 - forming
 - rolling

Paragraph 5: Of course, there is far more oil underground than can be recovered. It may be in a pool too

small or too far from a potential market to justify the expense of drilling. Some oil lies under regions where drilling is forbidden, such as national parks or other public lands. Even given the best extraction techniques, only about 30 to 40 percent of the oil in a given pool can be brought to the surface. The rest is far too difficult to extract and has to remain underground.

10. According to paragraph 5, the decision to drill for oil depends on all of the following factors EXCEPT
- permission to access the area where oil has been found
 - the availability of sufficient quantities of oil in a pool
 - the location of the market in relation to the drilling site
 - the political situation in the region where drilling would occur

Paragraph 6: Moreover, getting petroleum out of the ground and from under the sea and to the consumer can create environmental problems anywhere along the line. Pipelines carrying oil can be broken by faults or landslides, causing serious oil spills. Spillage from huge oil-carrying cargo ships, called tankers, involved in collisions or accidental groundings (such as the one off Alaska in 1989) can create oil slicks at sea. Offshore platforms may also lose oil, creating oil slicks that drift ashore and **foul** the beaches, harming the environment. Sometimes, the ground at an oil field may subside as oil is removed. The Wilmington field near Long Beach, California, has subsided nine meters in 50 years; protective barriers have had to be built to prevent seawater from flooding the area. Finally, the refining and burning of petroleum and its products can cause air pollution. Advancing technology and strict laws, however, are helping control some of these adverse environmental effects.

11. The word "**foul**" in the passage is closest in meaning to
- reach
 - flood
 - pollute
 - alter
12. In paragraph 6, the author's primary purpose is to
- provide examples of how oil exploration can endanger the environment
 - describe accidents that have occurred when oil activities were in progress
 - give an analysis of the effects of oil spills on the environment
 - explain how technology and legislation help reduce oil spills

Paragraph 2: Continued sedimentation—the process of deposits' settling on the sea bottom—buries the organic matter and subjects it to higher temperatures and pressures, which convert the organic matter to oil and gas. ■ As muddy sediments are pressed together, the gas and small droplets of oil may be squeezed out of the mud and may move into sandy layers nearby. ■ Over long periods of time (millions of years), accumulations of gas and oil can collect in the sandy layers. ■ Both oil and gas are less dense than water, so they generally tend to rise upward through water-saturated rock and sediment. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Unless something acts to halt this migration, these natural resources will eventually reach the surface.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are

minor ideas in the passage. **This question is worth 2 points.**

“Petroleum” is a broad term that includes both crude oil and natural gas.

-
-
-

Answer choices

- Petroleum formation is the result of biological as well as chemical activity.
- The difficulty of finding adequate sources of oil on land has resulted in a greater number of offshore drilling sites.
- Petroleum extraction can have a negative impact on the environment.
- Petroleum tends to rise to the surface, since it is lower in density than water.
- Current methods of petroleum extraction enable oil producers to recover about half of the world’s petroleum reserves.
- Accidents involving oil tankers occur when tankers run into shore reefs or collide with other vessels.

参考答案:

1. ○2
2. ○4
3. ○1
4. ○3
5. ○1
6. ○4
7. ○1
8. ○2
9. ○2
10. ○4
11. ○3
12. ○1
13. ○4
14. Petroleum formation is the...
 - The difficulty of finding...
 - Petroleum extraction can...

石油资源

石油是由原油和天然气组成，都源自于海洋的有机沉淀。微小的有机物定居在海底并堆积在海泥里，有机物会局部分解，消耗沉淀里的溶解氧，当氧气消耗殆尽分解便停止，留下剩余的有机物。

持续的沉积——堆积物沉积到海底的过程将有机物埋在海底使之受到海底温度、高压的影响，最终转变成油和气体。当泥状沉积物被挤压在一起时，天然气和石油液滴会被挤出泥层，然后进入附近的沙层。经过很长的一个周期（数百万年），积聚的天然气和石油会在沙层中聚集。因为石油和天然气的密度都比水低，所以他们通常通过饱含水岩层的岩层和沉积物往上升。

油床是宝贵的地下石油积聚处，而油田是被一个或多个油床覆盖区域。当人们发现油床或油田时，就会把井钻到地下。固定的塔称为井架，建造井架是为了控制长距离的钻杆。现代使用的便携式钻井机安装使用完成后，会被拆除和移走。因为石油的密度与在下层的水不同，或者因为石油上面的气体扩张形成的压力，当井探至油床时，石油通常会上升至井内。现在石油的上升已经可以很好的进行控制，但在过去，井喷或管涌经常发生。气体压力逐渐减小，然后油从井中被抽出。水或蒸汽会通过相邻的井被注入，以帮助推出石油。在炼油厂，地下的原油被分离成天然气、汽油、煤油和各种油类。石油还可用来生产石油化工产品，如染料、化肥、塑料制品等。

随着石油越来越难以找到，石油勘探已经开始到更恶劣的环境中进行。比如，在最新发现的油田案例中，阿拉斯加北部斜面油田就是一个管道建设成本高、难度大的例子。海底钻探平台将寻找石油的区域延伸到了海洋大陆架上——陆地附近浅海下缓缓的斜坡。世界上四分之一以上的石油和近五分之一的天然气都来自近海，尽管近海钻井的成本比陆地钻井高 **6 至 7 倍**。世界上相当一部分的石油和天然气来自大不列颠和挪威之间的北海。

当然，地下还能发现更多的石油。油床可能太小或远离潜在的市场而不适宜开采。一些石油存在于禁止钻井的地区，如国家公园或其他公共土地。即使提供最好的采油技术，油池中也只有大约百分之三十到四十的石油可以挖掘至地面。其余的因为太难抽取而不得不留在地下。

此外，从地下和海底获得石油运送到消费者的途中的任何地方都会产生环境问题。如果石油运输管道因为故障或塌方损坏，将会造成了严重的石油泄漏。运载石油的油轮在发生碰撞或意外搁浅（如在 **1989 年**阿拉斯加发生的油轮搁浅）的情况下，石油泄露会使得海上产生浮油。海上钻井平台也可能会泄露石油，生成的浮油漂流到岸上造成海滩污染，损害环境。有时一个油田的石油被抽取后，地面会发生下沉。加州长滩附近的威尔明顿油田，已经在 **50 年**内下沉了 **9 米**；人们不得不建造保护围墙以防止海水流进这个地区。最后，石油炼制、燃烧以及其产品也会造成空气污染。不过不管怎样，先进的技术和严格的法律正在协助控制这些对环境的不利影响。

Official Model Exam

Meteorite Impact and Dinosaur Extinction

There is increasing evidence that the impacts of meteorites have had important effects on Earth, particularly in the field of biological evolution. Such impacts continue to pose a natural hazard to life on Earth. Twice in the twentieth century, large meteorite objects are known to have collided with Earth.

If an impact is large enough, it can disturb the environment of the entire Earth and cause an ecological catastrophe. The best-documented such impact took place 65 million years ago at the end of the Cretaceous period of geological history. This break in Earth's history is marked by a mass extinction, when as many as half the species on the planet became extinct. While there are a dozen or more mass extinctions in the geological record, the Cretaceous mass extinction has always intrigued paleontologists because it marks the end of the age of the dinosaurs. For tens of millions of years, those great creatures had flourished. Then, suddenly, they disappeared.

The body that impacted Earth at the end of the Cretaceous period was a meteorite with a mass of more than a trillion tons and a diameter of at least 10 kilometers. Scientists first identified this impact in 1980 from the worldwide layer of sediment deposited from the dust cloud that enveloped the planet after the impact. This sediment layer is enriched in the rare metal iridium and other elements that are relatively abundant in a meteorite but very rare in the crust of Earth. Even diluted by the terrestrial material excavated from the crater, this component of meteorites is easily identified. By 1990 geologists had located the impact site itself in the Yucatán region of Mexico. The crater, now deeply buried in sediment, was originally about 200 kilometers in diameter.

This impact released an enormous amount of energy, excavating a crater about twice as large as the lunar crater Tycho. The explosion lifted about 100 trillion tons of dust into the atmosphere, as can be determined by measuring the thickness of the sediment layer formed when this dust settled to the surface. Such a quantity of material would have blocked the sunlight completely from reaching the surface, plunging Earth into a period of cold and darkness that lasted at least several months. The explosion is also calculated to have produced vast quantities of nitric acid and melted rock that sprayed out over much of Earth, starting widespread fires that must have consumed most terrestrial forests and grassland. Presumably, those environmental disasters could have been responsible for the mass extinction, including the death of the dinosaurs.

Several other mass extinctions in the geological record have been tentatively identified with large impacts, but none is so dramatic as the Cretaceous event. But even without such specific documentation, it is clear that impacts of this size do occur and that their results can be catastrophic. What is a catastrophe for one group of living things, however, may create opportunities for another group. Following each mass extinction, there is a sudden evolutionary burst as new species develop to fill the ecological niches opened by the event.

Impacts by meteorites represent one mechanism that could cause global catastrophes and seriously influence the evolution of life all over the planet. According to some estimates, the majority of all extinctions of species may be due to such impacts. Such a perspective fundamentally changes our view of biological evolution. The standard criterion for the survival of a species is its success in competing with other species and adapting to slowly changing environments. Yet an equally important criterion is the ability of a species to survive random global ecological catastrophes due to impacts.

Earth is a target in a cosmic shooting gallery, subject to random violent events that were unsuspected a few decades ago. In 1991 the United States Congress asked NASA to investigate the hazard posed today by large impacts on Earth. The group conducting the study concluded from a detailed analysis that impacts from meteorites can indeed be hazardous. Although there is always some risk that a large impact could occur, careful study shows that this risk is quite small.

Paragraph 1: There is increasing evidence that the impacts of meteorites have had important effects on Earth, particularly in the field of biological evolution. Such impacts continue to **pose** a natural hazard to life on Earth. Twice in the twentieth century, large meteorite objects are known to have collided with Earth.

1. The word “**pose**” in the passage is closest in the meaning to
- claim
 - model
 - assume
 - present

Paragraph 2: If an impact is large enough, it can disturb the environment of the entire Earth and cause an ecological catastrophe. The best-documented such impact took place 65 million years ago at the end of the Cretaceous period of geological history. This break in Earth's history is marked by a mass extinction, when as many as half the species on the planet became extinct. While there are a dozen or more mass extinctions in the geological record, the Cretaceous mass extinction has always intrigued paleontologists because it marks the end of the age of the dinosaurs. For tens of millions of years, those great creatures had flourished. Then, suddenly, they disappeared.

2. In paragraph 2, why does the author include the information that dinosaurs had flourished for tens of millions of years and then suddenly disappeared?
- To support the claim that the mass extinction at the end of the Cretaceous is the best-documented of the dozen or so mass extinctions in the geological record
 - To explain why as many as half of the species on Earth at the time are believed to have become extinct at the end of the Cretaceous
 - To explain why paleontologists have always been intrigued by the mass extinction at the end of the Cretaceous
 - To provide evidence that an impact can be large enough to disturb the environment of the entire planet and cause an ecological disaster

Paragraph 3: The body that impacted Earth at the end of the Cretaceous period was a meteorite with a mass of more than a trillion tons and a diameter of at least 10 kilometers. Scientists first identified this impact in 1980 from the worldwide layer of sediment deposited from the dust cloud that enveloped the planet after the impact. This sediment layer is enriched in the rare metal iridium and other elements that are relatively abundant in a meteorite but very rare in the crust of Earth. Even diluted by the terrestrial material excavated from the crater, this component of meteorites is easily identified. By 1990 geologists had located the impact site itself in the Yucatán region of Mexico. The crater, now deeply buried in sediment, was originally about 200 kilometers in diameter.

3. Which of the following can be inferred from paragraph 3 about the location of the meteorite impact in Mexico?
- The location of the impact site in Mexico was kept secret by geologists from 1980 to 1990.

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- It was a well-known fact that the impact had occurred in the Yucat region.
 - Geologists knew that there had been an impact before they knew where it had occurred.
 - The Yucat region was chosen by geologists as the most probable impact site because of its climate.

4. According to paragraph 3, how did scientists determine that a large meteorite had impacted Earth?

- They discovered a large crater in the Yucat region of Mexico.
- They found a unique layer of sediment worldwide.
- They were alerted by archaeologists who had been excavating in the Yucat region.
- They located a meteorite with a mass of over a trillion tons.

Paragraph 4: This impact released an enormous amount of energy, excavating a crater about twice as large as the lunar crater Tycho. The explosion lifted about 100 trillion tons of dust into the atmosphere, as can be determined by measuring the thickness of the sediment layer formed when this dust settled to the surface. Such a quantity of material would have blocked the sunlight completely from reaching the surface, plunging Earth into a period of cold and darkness that lasted at least several months. The explosion is also calculated to have produced vast quantities of nitric acid and melted rock that sprayed out over much of Earth, starting widespread fires that must have consumed most terrestrial forests and grassland. Presumably, those environmental disasters could have been responsible for the mass extinction, including the death of the dinosaurs.

5. The word "excavating" in the passage is closest in the meaning to

- digging out
- extending
- destroying
- covering up

6. The word "consumed" in the passage is closest in the meaning to

- changed
- exposed
- destroyed
- covered

7. According to paragraph 4, all of the following statements are true of the impact at the end of the Cretaceous period EXCEPT:

- A large amount of dust blocked sunlight from Earth.
- Earth became cold and dark for several months.
- New elements were formed in Earth's crust.
- Large quantities of nitric acid were produced.

Paragraph 5: Several other mass extinctions in the geological record have been tentatively identified with large impacts, but none is so dramatic as the Cretaceous event. But even without such specific documentation, it is clear that impacts of this size do occur and that their results can be catastrophic. What is a catastrophe for one group of living things, however, may create opportunities for another group. Following each mass extinction, there is a sudden evolutionary burst as new species develop to fill the ecological niches opened by the event.

8. The phrase "tentatively identified" in the passage is closest in the meaning to

- identified after careful study
- identified without certainty
- occasionally identified

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- easily identified

Paragraph 6: Impacts by meteorites represent one mechanism that could cause global catastrophes and seriously influence the evolution of life all over the planet. According to some estimates, the majority of all extinctions of species may be due to such impacts. Such a perspective fundamentally changes our view of biological evolution. The standard criterion for the survival of a species is its success in competing with other species and adapting to slowly changing environments. Yet an equally important criterion is the ability of a species to survive random global ecological catastrophes due to impacts.

9. The word “perspective” in the passage is closest in the meaning to

- sense of values
- point of view
- calculation
- complication

10. Paragraph 6 supports which of the following statements about the factors that are essential for the survival of a species?

- The most important factor for the survival of a species is its ability to compete and adapt to gradual changes in its environment.
- The ability of a species to compete and adapt to a gradually changing environment is not the only ability that is essential for survival.
- Since most extinctions of species are due to major meteorite impacts, the ability to survive such impacts is the most important factor for the survival of a species.
- The factors that are most important for the survival of a species vary significantly from one species to another.

Paragraph 7: Earth is a target in a cosmic shooting gallery, subject to random violent events that were unsuspected a few decades ago. In 1991 the United States Congress asked NASA to investigate the hazard posed today by large impacts on Earth. The group conducting the study concluded from a detailed analysis that impacts from meteorites can indeed be hazardous. Although there is always some risk that a large impact could occur, careful study shows that this risk is quite small.

11. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Until recently, nobody realized that Earth is exposed to unpredictable violent impacts from space.
- In the last few decades, the risk of a random violent impact from space has increased.
- Since most violent events on Earth occur randomly, nobody can predict when or where they will happen.
- A few decades ago, Earth became the target of random violent events originating in outer space.

12. According to the passage, who conducted investigations about the current dangers posed by large meteorite impacts on Earth?

- Paleontologists
- Geologists
- The United States Congress
- NASA

Paragraph 6: Impacts by meteorites represent one mechanism that could cause global catastrophes and

seriously influence the evolution of life all over the planet. ■ According to some estimates, the majority of all extinctions of species may be due to such impacts. ■ Such a perspective fundamentally changes our view of biological evolution. ■ The standard criterion for the survival of a species is its success in competing with other species and adapting to slowly changing environments. ■ Yet an equally important criterion is the ability of a species to survive random global ecological catastrophes due to impacts.

13. Look at the four squares [■] that indicate where the following sentence can be added to the passage.

This is the criterion emphasized by Darwin's theory of evolution by natural selection.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Scientists have linked the mass extinction at the end of the Cretaceous with a meteorite impact on Earth.

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Answer choices

- Scientists had believed for centuries that meteorite activity influenced evolution on Earth.
- An iridium-enriched sediment layer and a large impact crater in the Yucat provide evidence that a large meteorite struck Earth about 65 million years ago.
- The site of the large meteorite impact at the end of the Cretaceous period was identified in 1990.
- Large meteorite impacts, such as one at the end of the Cretaceous period, can seriously affect climate, ecological niches, plants, and animals.
- There have also been large meteorite impacts on the surface of the Moon, leaving craters like Tycho.
- Meteorite impacts can be advantageous for some species, which thrive, and disastrous for other species, which become extinct.

参考答案:

1. ○4
2. ○3
3. ○3
4. ○2
5. ○1
6. ○3
7. ○3
8. ○2
9. ○2
10. ○2
11. ○1
12. ○4
13. ○4
14. An iridium-enriched sediment...
Large meteorite impacts...
Meteorite impacts can...

陨石撞击和恐龙的灭绝

越来越多的证据表明陨石撞击对地球造成的影响特别严重，尤其是生物进化领域。这种影响对地球上的生物来说，仍然是一种自然威胁。在二十世纪，被人们所知悉的就有两次大型陨石撞地球的事件发生。

当撞击力度特别大时，陨石和地球的相撞将扰乱整个地球的环境，并引发一场生态灾难。记载最完整的这种灾难曾发生在 **6500** 万年前，在地质历史阶段的白垩纪末期。地球历史上的那次重大灾难造成了大量生物死亡，当时多达一半的物种灭绝。根据地质史料记载，地球上有十几次甚至更多大型的物种灭绝，古生物学家一直对白垩纪大灭绝非常感兴趣，因为它标志着恐龙时代的结束。数千万年以来，那些庞大的生物繁盛活跃着；然后突然间，它们消失了。

白垩纪末期，撞击地球主体是一块巨大陨石，它的质量超过万吨，直径至少在 **10** 公里。**1980** 年科学家通过研究撞击后形成的、覆盖地球表面的尘雾沉积层，首次确认了这次撞击。该沉积层富含稀有金属铱和其他在陨石中含量较丰富但在地壳中却很稀有的元素。即便这些物质从陨石坑被挖掘出来后受到地球物质的稀释，其中的成分仍然很容易被鉴定出来。**1990** 年，地质学家已经将那次撞击的地点定位于墨西哥的尤卡地区。现在被深埋于沉积物中的陨石坑，最初的直径为 **200** 公里左右。

这次撞击释放出了巨大的能量，凿出了一个特别大的陨石坑，约为月球第谷山口面积的两倍大。那场爆炸将大量尘埃扬起至大气层中，尘埃降至地面后逐渐形成沉积岩，通过测量沉积岩的厚度，我们可以判断当时的大气中的尘埃约有 **100** 万吨。如此大量的物质存在于大气层中，将会完全阻隔阳光的照射，于是地球一瞬间进入了一个持续数月之久的寒冷黑暗时期。据估计，爆炸过程还产生了大量的硝酸和被溶解的岩浆并喷出地球外，造成了大面积火灾，大部分的森林和草原被燃尽。这些环境灾难很可能就是包括恐龙在内的大规模物种灭绝的原因。

根据地质学记载，一些其他大批生物的灭绝也被试验性地认为与类似的撞击有关，但都没有白垩纪的那次触目惊心。不过即便是没有具体史料依据，这种规模的撞击显然发生过，并且带来了灾难性的后果。然而对于一个生物种群而言算是大灾难，却有可能给另一个种群创造了机会。每一次大灭绝过后，都会有新的物种爆炸式地进化去填补由灭绝造成的物种空缺。

陨石撞击描绘了一个能够制造全球性的灾难的途径，这种灾难会对整个星球的生命体的进化带来重大影响。据估计，已经灭绝的所有物中，绝大部分都是由于这些撞击造成的。这种观点从根本上改变了我们对于生物进化的看法。一个物种生存的标准准则就是它成功地与其他物种对抗，并适应缓慢变化的环境。然而还有一个同等重要的准则就是，它们可以从随机的、由天体撞击造成的全球生态灾难中幸存。

几十年前，地球是宇宙射击场的一个靶子，容易受到未知的随机暴力事件的攻击。**1991** 年美国国会要求美国国家航空航天局调查大型撞击对地球造成的危害。指挥这项研究的团队通过详细的分析得出这样一个结论：陨石撞击确实是危险的。尽管大型撞击发生的风险依然存在，但是谨慎的研究这门也认为这种风险的出现几率非常小。

Minerals and Plants

Research has shown that certain minerals are required by plants for normal growth and development. The soil is the source of these minerals, which are absorbed by the plant with the water from the soil. Even nitrogen, which is a gas in its elemental state, is normally absorbed from the soil as nitrate ions. Some soils are notoriously deficient in micro nutrients and are therefore unable to support most plant life. So-called serpentine soils, for example, are deficient in calcium, and only plants able to tolerate low levels of this mineral can survive. In modern agriculture, mineral depletion of soils is a major concern, since harvesting crops interrupts the recycling of nutrients back to the soil.

Mineral deficiencies can often be detected by specific symptoms such as chlorosis (loss of chlorophyll resulting in yellow or white leaf tissue), necrosis (isolated dead patches), anthocyanin formation (development of deep red pigmentation of leaves or stem), stunted growth, and development of woody tissue in an herbaceous plant. Soils are most commonly deficient in nitrogen and phosphorus. Nitrogen-deficient plants exhibit many of the symptoms just described. Leaves develop chlorosis; stems are short and slender, and anthocyanin discoloration occurs on stems, petioles, and lower leaf surfaces. Phosphorus-deficient plants are often stunted, with leaves turning a characteristic dark green, often with the accumulation of anthocyanin. Typically, older leaves are affected first as the phosphorus is mobilized to young growing tissue. Iron deficiency is characterized by chlorosis between veins in young leaves.

Much of the research on nutrient deficiencies is based on growing plants hydroponically, that is, in soilless liquid nutrient solutions. This technique allows researchers to create solutions that selectively omit certain nutrients and then observe the resulting effects on the plants. Hydroponics has applications beyond basic research, since it facilitates the growing of greenhouse vegetables during winter. Aeroponics, a technique in which plants are suspended and the roots misted with a nutrient solution, is another method for growing plants without soil.

While mineral deficiencies can limit the growth of plants, an overabundance of certain minerals can be toxic and can also limit growth. Saline soils, which have high concentrations of sodium chloride and other salts, limit plant growth, and research continues to focus on developing salt-tolerant varieties of agricultural crops. Research has focused on the toxic effects of heavy metals such as lead, cadmium, mercury, and aluminum; however, even copper and zinc, which are essential elements, can become toxic in high concentrations. Although most plants cannot survive in these soils, certain plants have the ability to tolerate high levels of these minerals.

Scientists have known for some time that certain plants, called hyperaccumulators, can concentrate minerals at levels a hundredfold or greater than normal. A survey of known hyperaccumulators identified that 75 percent of them amassed nickel, cobalt, copper, zinc, manganese, lead, and cadmium are other minerals of choice. Hyperaccumulators run the entire range of the plant world. They may be herbs, shrubs, or trees. Many members of the mustard family, spurge family, legume family, and grass family are top hyperaccumulators. Many are found in tropical and subtropical areas of the world, where accumulation of high concentrations of metals may afford some protection against plant-eating insects and microbial pathogens.

Only recently have investigators considered using these plants to clean up soil and waste sites that have been

contaminated by toxic levels of heavy metals—an environmentally friendly approach known as phytoremediation. This scenario begins with the planting of hyperaccumulating species in the target area, such as an abandoned mine or an irrigation pond contaminated by runoff. Toxic minerals would first be absorbed by roots but later relocated to the stem and leaves. A harvest of the shoots would remove the toxic compounds off site to be burned or composted to recover the metal for industrial uses. After several years of cultivation and harvest, the site would be restored at a cost much lower than the price of excavation and reburial, the standard practice for remediation of contaminated soils. For examples, in field trials, the plant alpine pennycress removed zinc and cadmium from soils near a zinc smelter, and Indian mustard, native to Pakistan and India, has been effective in reducing levels of selenium salts by 50 percent in contaminated soils.

Paragraph 1: Research has shown that certain minerals are required by plants for normal growth and development. The soil is the source of these minerals, which are absorbed by the plant with the water from the soil. Even nitrogen, which is a gas in its elemental state, is normally absorbed from the soil as nitrate ions. Some soils are notoriously deficient in micro nutrients and are therefore unable to support most plant life. So-called serpentine soils, for example, are deficient in calcium, and only plants able to tolerate low levels of this mineral can survive. In modern agriculture, mineral depletion of soils is a major concern, since harvesting crops interrupts the recycling of nutrients back to the soil.

1. According to paragraph 1, what is true of plants that can grow in serpentine soil?

- They absorb micronutrients unusually well.
- They require far less calcium than most plants do.
- They are able to absorb nitrogen in its elemental state.
- They are typically crops raised for food.

Paragraph 2: Mineral deficiencies can often be detected by specific symptoms such as chlorosis (loss of chlorophyll resulting in yellow or white leaf tissue), necrosis (isolated dead patches), anthocyanin formation (development of deep red pigmentation of leaves or stem), stunted growth, and development of woody tissue in an herbaceous plant. Soils are most commonly deficient in nitrogen and phosphorus. Nitrogen-deficient plants **exhibit** many of the symptoms just described. Leaves develop chlorosis; stems are short and slender, and anthocyanin discoloration occurs on stems, petioles, and lower leaf surfaces. Phosphorus-deficient plants are often stunted, with leaves turning a characteristic dark green, often with the accumulation of anthocyanin. Typically, older leaves are affected first as the phosphorus is mobilized to young growing tissue. Iron deficiency is characterized by chlorosis between veins in young leaves.

2. The word “**exhibit**” in the passage is closest in meaning to

- fight off
- show
- cause
- spread

3. According to paragraph 2, which of the following symptoms occurs in phosphorus-deficient plants but not in plants deficient in nitrogen or iron?

- Chlorosis on leaves
- Change in leaf pigmentation to a dark shade of green
- Short, stunted appearance of stems
- Reddish pigmentation on the leaves or stem

4. According to paragraph 2, a symptom of iron deficiency is the presence in young leaves of

- deep red discoloration between the veins
- white or yellow tissue between the veins
- dead spots between the veins
- characteristic dark green veins

Paragraph 3: Much of the research on nutrient deficiencies is based on growing plants hydroponically, that is, in soilless liquid nutrient solutions. This technique allows researchers to create solutions that selectively omit certain nutrients and then observe the resulting effects on the plants. Hydroponics has applications beyond basic research, since it facilitates the growing of greenhouse vegetables during winter. Aeroponics, a technique in which plants are suspended and the roots misted with a nutrient solution, is another method for growing plants without soil.

5. The word “facilitates” in the passage is closest in meaning to

- slows down
- affects
- makes easier
- focuses on

6. According to paragraph 3, what is the advantage of hydroponics for research on nutrient deficiencies in plants?

- It allows researchers to control what nutrients a plant receives.
- It allows researchers to observe the growth of a large number of plants simultaneously.
- It is possible to directly observe the roots of plants.
- It is unnecessary to keep misting plants with nutrient solutions.

7. The word “suspended” in the passage is closest in meaning to

- grown
- protected
- spread out
- hung

Paragraph 5: Scientists have known for some time that certain plants, called hyperaccumulators, can concentrate minerals at levels a hundredfold or greater than normal. A survey of known hyperaccumulators identified that 75 percent of them amassed nickel, cobalt, copper, zinc, manganese, lead, and cadmium are other minerals of choice. Hyperaccumulators run the entire range of the plant world. They may be herbs, shrubs, or trees. Many members of the mustard family, spurge family, legume family, and grass family are top hyperaccumulators. Many are found in tropical and subtropical areas of the world, where accumulation of high concentrations of metals may afford some protection against plant-eating insects and microbial pathogens.

8. Why does the author mention “herbs”, “shrubs”, and “trees”?

- To provide examples of plant types that cannot tolerate high levels of harmful minerals.
- To show why so many plants are hyperaccumulators.
- To help explain why hyperaccumulators can be found in so many different places.
- To emphasize that hyperaccumulators occur in a wide range of plant types.

9. The word “afford” in the passage is closest in meaning to

- offer

-
- prevent
 - increase
 - remove

Paragraph 6: Only recently have investigators considered using these plants to clean up soil and waste sites that have been contaminated by toxic levels of heavy metals—an environmentally friendly approach known as phytoremediation. This scenario begins with the planting of hyperaccumulating species in the target area, such as an abandoned mine or an irrigation pond contaminated by runoff. Toxic minerals would first be absorbed by roots but later relocated to the stem and leaves. A harvest of the shoots would remove the toxic compounds off site to be burned or composted to recover the metal for industrial uses. After several years of cultivation and harvest, the site would be restored at a cost much lower than the price of excavation and reburial, the standard practice for remediation of contaminated soils. For examples, in field trials, the plant alpine pennycress removed zinc and cadmium from soils near a zinc smelter, and Indian mustard, native to Pakistan and India, has been effective in reducing levels of selenium salts by 50 percent in contaminated soils.

10. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Before considering phytoremediation, hyperaccumulating species of plants local to the target area must be identified.
- The investigation begins with an evaluation of toxic sites in the target area to determine the extent of contamination.
- The first step in phytoremediation is the planting of hyperaccumulating plants in the area to be cleaned up.
- Mines and irrigation ponds can be kept from becoming contaminated by planting hyperaccumulating species in targeted areas.

11. It can be inferred from paragraph 6 that compared with standard practices for remediation of contaminated soils, phytoremediation

- does not allow for the use of the removed minerals for industrial purposes
- can be faster to implement
- is equally friendly to the environment
- is less suitable for soils that need to be used within a short period of time

12. Why does the author mention “Indian mustard”?

- To warn about possible risks involved in phytoremediation
- To help illustrate the potential of phytoremediation
- To show that hyperaccumulating plants grow in many regions of the world
- To explain how zinc contamination can be reduced

Paragraph 5: Scientists have known for some time that certain plants, called hyperaccumulators, can concentrate minerals at levels a hundredfold or greater than normal. ■A survey of known hyperaccumulators identified that 75 percent of them amassed nickel, cobalt, copper, zinc, manganese, lead, and cadmium are other minerals of choice. ■Hyperaccumulators run the entire range of the plant world. ■They may be herbs, shrubs, or trees. ■Many members of the mustard family, spurge family, legume family, and grass family are top hyperaccumulators. Many are found in tropical and subtropical areas of the world, where accumulation of high concentrations of metals may afford some protection against plant-eating insects and microbial pathogens.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Certain minerals are more likely to be accumulated in large quantities than others.

Where could the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some answer choices do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Plants need to absorb certain minerals from the soil in adequate quantities for normal growth and development.

-
-
-

Answer Choices

- Some plants are able to accumulate extremely high levels of certain minerals and thus can be used to clean up soils contaminated with toxic levels of these minerals.
- Though beneficial in lower levels, high levels of salts, other minerals, and heavy metals can be harmful to plants.
- When plants do not absorb sufficient amounts of essential minerals, characteristic abnormalities result.
- Because high concentrations of sodium chloride and other salts limit growth in most plants, much research has been done in an effort to develop salt-tolerant agricultural crops.
- Some plants can tolerate comparatively low levels of certain minerals, but such plants are of little use for recycling nutrients back into depleted soils.
- Mineral deficiencies in many plants can be cured by misting their roots with a nutrient solution or by transferring the plants to a soilless nutrient solution.

参考答案:

1.○2

2.○2

3.○2

4.○2

5.○3

6.○1

7.○4

8.○4

9.○1

10.○3

11.○4

12.○2

13.○1

14. Some plants are able to

Though beneficial in lower...

When plants do not...

矿物质和植物

研究表明，某些矿物质是植物正常生长发育所必需的。土壤是这些矿物质的来源，它们通过水分被植物从土壤中吸收。即使是元素状态为气体的氮，也通常作为硝酸根离子从土壤中被吸收。众所周知，一些土壤缺乏微量营养素，因此大多数植物不能生长。例如所谓的蛇纹岩土壤，由于缺乏钙，只有那些能忍受如此低水平的钙的植物才能够存活。在现代农业，土壤矿物质枯竭是一个大问题，因为收割庄稼切断了养分返回土壤的循环。

矿物质缺乏通常可由特定的症状检测出来，如褪绿（叶绿素损失导致黄叶或白叶的现象）、坏疽（孤立的坏死斑）、花青素的形成（形成深红色叶片和茎色素沉积）、发育不良，以及草本植物长木质组织。土壤最常缺乏的是氮和磷。氮缺乏植物表现出了刚才描述的许多症状：叶片黄化、茎短而细以及发生在茎、叶柄以及叶子下角质层的花青素变色。磷缺乏的植物往往发育不良，叶片变成特殊的深绿色，经常伴随着花青素的积累。由于磷流向新生的组织，通常较老的叶片首先受到影响。铁缺乏症的特点是嫩叶的叶脉之间萎黄。

大多数关于营养素缺乏症的研究都基于水培法，即在无土营养液中培养。这项技术允许研究人员创造缺乏某种营养素的溶液，然后观察对植物生长造成的影响。水培法的应用已经超越了基础研究，因为它促进了温室蔬菜在冬季的生长。气培法，一种把植物悬挂起来，将其根部喷上营养液，是另外一种无土栽培的方法。

虽然缺乏矿物质会抑制植物生长，但某些矿物质过量可能会有毒，同样也会抑制植物生长。含有高浓度的氯化钠和其他盐类的盐碱土壤抑制植物生长，于是研究继续集中开发耐盐农作物品种。着重研究重金属的毒性作用，如铅、镉、汞、铝；然而即使是铜和锌这样的必需元素，如果浓度过高也会产生毒性。虽然大多数植物无法在这种土壤生存，某些植物却能够忍耐如此高含量的矿物质。

科学家早前就了解到，某些所谓的富集植物能够比普通植物多集中一百倍甚至更多的矿物质。一项对已知富集植物的调查表明，它们中 **75%** 积聚了镍，而钴、铜、锌、锰、铅和镉则是其他选择性聚集的矿物质。富集植物广泛分布于整个植物界，它们可能是草本植物、灌木或树。芥属、大戟属、豆科和禾本科植物中的许多成员都是靠前的富集植物。许多富集植物被发现于热带和亚热带，金属可以为植物提供保护，对抗食草类昆虫和细菌病原体。

直到最近研究者才考虑用这些植物来清理已经被有毒重金属污染的土壤和废弃物处理点——一种被称为植物修复的环境友好方法。这套方案首先从在目标区域种植超积累物种开始，如在废弃矿井和被径流污染的灌溉池塘。有毒矿物质首先被根吸收，随后被运送至茎和叶。收割下来的枝叶将被焚烧以移除有毒化合物或被制成混合肥料回收金属用于工业。经过几年的种植和收割，该污染点将被修复，而其造价远比修复污染土壤的标准做法——挖掘和填埋来得低。举例来说，在实地试验中，高山芥从靠近一个锌冶炼厂的土壤中去除了锌和镉，原产自巴基斯坦和印度的印度芥菜可以将染土壤中硒的水平有效地降低 **50%**。

The Origin of the Pacific Island People

The greater Pacific region, traditionally called Oceania, consists of three cultural areas: Melanesia, Micronesia, and Polynesia. Melanesia, in the southwest Pacific, contains the large islands of New Guinea, the Solomons, Vanuatu, and New Caledonia. Micronesia, the area north of Melanesia, consists primarily of small scattered islands. Polynesia is the central Pacific area in the great triangle defined by Hawaii, Easter Island, and New Zealand. Before the arrival of Europeans, the islands in the two largest cultural areas, Polynesia and Micronesia, together contained a population estimated at 700,000.

Speculation on the origin of these Pacific islanders began as soon as outsiders encountered them, in the absence of solid linguistic, archaeological, and biological data, many fanciful and mutually exclusive theories were devised. Pacific islanders are variously thought to have come from North America, South America, Egypt, Israel, and India, as well as Southeast Asia. Many older theories implicitly deprecated the navigational abilities and overall cultural creativity of the Pacific islanders. For example, British anthropologists G. Elliot Smith and W. J. Perry assumed that only Egyptians would have been skilled enough to navigate and colonize the Pacific. They inferred that the Egyptians even crossed the Pacific to found the great civilizations of the New World (North and South America). In 1947 Norwegian adventurer Thor Heyerdahl drifted on a balsa-log raft westward with the winds and currents across the Pacific from South America to prove his theory that Pacific islanders were Native Americans (also called American Indians). Later Heyerdahl suggested that the Pacific was peopled by three migrations: by Native Americans from the Pacific Northwest of North America drifting to Hawaii, by Peruvians drifting to Easter Island, and by Melanesians. In 1969 he crossed the Atlantic in an Egyptian-style reed boat to prove Egyptian influences in the Americas. Contrary to these theorists, the overwhelming evidence of physical anthropology, linguistics, and archaeology shows that the Pacific islanders came from Southeast Asia and were skilled enough as navigators to sail against the prevailing winds and currents.

The basic cultural requirements for the successful colonization of the Pacific islands include the appropriate boat-building, sailing, and navigation skills to get to the islands in the first place, domesticated plants and gardening skills suited to often marginal conditions, and a varied inventory of fishing implements and techniques. It is now generally believed that these prerequisites originated with peoples speaking Austronesian languages (a group of several hundred related languages) and began to emerge in Southeast Asia by about 5000 B.C.E. The culture of that time, based on archaeology and linguistic reconstruction, is assumed to have had a broad inventory of cultivated plants including taro, yams, banana, sugarcane, breadfruit, coconut, sago, and rice. Just as important, the culture also possessed the basic foundation for an effective maritime adaptation, including outrigger canoes and a variety of fishing techniques that could be effective for overseas voyaging.

Contrary to the arguments of some that much of the Pacific was settled by Polynesians accidentally marooned after being lost and adrift, it seems reasonable that this feat was accomplished by deliberate colonization expeditions that set out fully stocked with food and domesticated plants and animals. Detailed studies of the winds and currents using computer simulations suggest that drifting canoes would have been a most unlikely means of colonizing the Pacific. These expeditions were likely driven by population growth and political dynamics on the home islands, as well as the challenge and excitement of exploring unknown waters. Because all Polynesians, Micronesians, and many Melanesians speak Austronesian languages and grow crops derived from Southeast Asia, all these peoples most certainly derived from that region and not the New World or elsewhere. The undisputed pre-Columbian presence in Oceania of the sweet potato, which is a New World domesticate, has sometimes been used to support Heyerdahl's "American Indians in the Pacific" theories. However, this is one plant out of a long list of Southeast Asian domesticates. As Patrick Kirch, an American

anthropologist, points out, rather than being brought by rafting South Americans, sweet potatoes might just have easily been brought back by returning Polynesian navigators who could have reached the west coast of South America.

Paragraph1: The greater Pacific region, traditionally called Oceania, consists of three cultural areas: Melanesia, Micronesia, and Polynesia. Melanesia, in the southwest Pacific, contains the large islands of New Guinea, the Solomons, Vanuatu, and New Caledonia. Micronesia, the area north of Melanesia, consists primarily of small scattered islands. Polynesia is the central Pacific area in the great triangle defined by Hawaii, Easter Island, and New Zealand. Before the arrival of Europeans, the islands in the two largest cultural areas, Polynesia and Micronesia, together contained a population estimated at 700,000.

1. According to paragraph 1, all of the following are true statements about Melanesia, Micronesia, and Polynesia EXCEPT:

- Collectively, these regions are traditionally known as Oceania.
- These islands of Micronesia are small and spread out.
- Hawaii, Easter Island, and New Zealand mark the boundaries of Polynesia.
- Melanesia is situated to the north of Micronesia.

Paragraph 2: Speculation on the origin of these Pacific islanders began as soon as outsiders encountered them, in the absence of solid linguistic, archaeological, and biological data, many fanciful and mutually exclusive theories were devised. Pacific islanders are variously thought to have come from North America, South America, Egypt, Israel, and India, as well as Southeast Asia. Many older theories implicitly deprecated the navigational abilities and overall cultural creativity of the Pacific islanders. For example, British anthropologists G. Elliot Smith and W. J. Perry assumed that only Egyptians would have been skilled enough to navigate and colonize the Pacific. They inferred that the Egyptians even crossed the Pacific to found the great civilizations of the New World (North and South America). In 1947 Norwegian adventurer Thor Heyerdahl drifted on a balsa-log raft westward with the winds and currents across the Pacific from South America to prove his theory that Pacific islanders were Native Americans (also called American Indians). Later Heyerdahl suggested that the Pacific was peopled by three migrations: by Native Americans from the Pacific Northwest of North America drifting to Hawaii, by Peruvians drifting to Easter Island, and by Melanesians. In 1969 he crossed the Atlantic in an Egyptian-style reed boat to prove Egyptian influences in the Americas. Contrary to these theorists, the overwhelming evidence of physical anthropology, linguistics, and archaeology shows that the Pacific islanders came from Southeast Asia and were skilled enough as navigators to sail against the prevailing winds and currents.

2. By stating that the theories are “mutually exclusive” the author means that

- if one of the theories is true, then all the others must be false
- the differences between the theories are unimportant
- taken together, the theories cover all possibilities
- the theories support each other

3. The word “overwhelming” in the passage is closest in meaning to

- powerful
- favorable
- current
- reasonable

4. According to paragraph 2, which of the following led some early researchers to believe that the Pacific

islanders originally came from Egypt?

- Egyptians were known to have founded other great civilizations.
- Sailors from other parts of the world were believed to lack the skills needed to travel across the ocean.
- Linguistic, archaeological, and biological data connected the islands to Egypt.
- Egyptian accounts claimed responsibility for colonizing the Pacific as well as the Americas.

5. Which of the following can be inferred from paragraph 2 about early theories of where the first inhabitants of the Pacific islands came from?

- They were generally based on solid evidence.
- They tried to account for the origin of the characteristic features of the languages spoken by Pacific islanders.
- They assumed that the peoples living in Southeast Asia did not have the skills needed to sail to the Pacific islands.
- They questioned the ideas of G. Elliot Smith and W. J. Perry.

Paragraph 3: The basic cultural requirements for the successful colonization of the Pacific islands include the appropriate boat-building, sailing, and navigation skills to get to the islands in the first place, domesticated plants and gardening skills suited to often marginal conditions, and a varied inventory of fishing implements and techniques. It is now generally believed that these prerequisites originated with peoples speaking Austronesian languages (a group of several hundred related languages) and began to emerge in Southeast Asia by about 5000 B.C.E. The culture of that time, based on archaeology and linguistic reconstruction, is assumed to have had a broad inventory of cultivated plants including taro, yams, banana, sugarcane, breadfruit, coconut, sago, and rice. Just as important, the culture also possessed the basic foundation for an effective maritime adaptation, including outrigger canoes and a variety of fishing techniques that could be effective for overseas voyaging.

6. The word "implements" in the passage is closest in meaning to

- skills
- tools
- opportunities
- practices

7. All of the following are mentioned in paragraph 3 as required for successful colonization of the Pacific islands EXCEPT

- knowledge of various Austronesian languages
- a variety of fishing techniques
- navigational skills
- knowledge of plant cultivation

8. In paragraph 3, why does the author provide information about the types of crops grown and boats used in Southeast Asia during the period around 5000 B. C. E.?

- To evaluate the relative importance of agriculture and fishing to early Austronesian peoples
- To illustrate the effectiveness of archaeological and linguistic methods in discovering details about life in ancient times
- To contrast living conditions on the continent of Asia with living conditions on the Pacific islands
- To demonstrate that people from this region had the skills and resources necessary to travel to and survive on the Pacific islands

Paragraph 4: Contrary to the arguments of some that much of the Pacific was settled by Polynesians

accidentally marooned after being lost and adrift, it seems reasonable that this feat was accomplished by deliberate colonization expeditions that set out fully stocked with food and domesticated plants and animals. Detailed studies of the winds and currents using computer simulations suggest that drifting canoes would have been a most unlikely means of colonizing the Pacific. These expeditions were likely driven by population growth and political dynamics on the home islands, as well as the challenge and excitement of exploring unknown waters. Because all Polynesians, Micronesians, and many Melanesians speak Austronesian languages and grow crops derived from Southeast Asia, all these peoples most certainly derived from that region and not the New World or elsewhere. The undisputed pre-Columbian presence in Oceania of the sweet potato, which is a New World domesticate, has sometimes been used to support Heyerdahl's "American Indians in the Pacific" theories. However, this is one plant out of a long list of Southeast Asian domesticates. As Patrick Kirch, an American anthropologist, points out, rather than being brought by rafting South Americans, sweet potatoes might just have easily been brought back by returning Polynesian navigators who could have reached the west coast of South America.

9. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Some people have argued that the Pacific was settled by traders who became lost while transporting domesticated plants and animals.
- The original Polynesian settlers were probably marooned on the islands, but they may have been joined later by carefully prepared colonization expeditions.
- Although it seems reasonable to believe that colonization expeditions would set out fully stocked, this is contradicted by much of the evidence.
- The settlement of the Pacific islands was probably intentional and well planned rather than accidental as some people have proposed.

10. The word "undisputed" in the passage is closest in meaning to

- mysterious
- unexpected
- acknowledged
- significant

11. According to paragraph 4, which of the following is NOT an explanation for why a group of people might have wanted to colonize the Pacific islands?

- As their numbers increased, they needed additional territory.
- The winds and currents made the islands easy to reach.
- The political situation at home made emigration desirable.
- They found exploration challenging and exciting.

12. Why does the author mention the views of "Patrick Kirch"?

- To present evidence in favor of Heyerdahl's idea about American Indians reaching Oceania
- To emphasize the familiarity of Pacific islanders with crops from many different regions of the world
- To indicate that supposed proof for Heyerdahl's theory has an alternative explanation
- To demonstrate that some of the same crops were cultivated in both South America and Oceania

Paragraph 2: Speculation on the origin of these Pacific islanders began as soon as outsiders encountered them, in the absence of solid linguistic, archaeological, and biological data, many fanciful and mutually exclusive theories were devised. Pacific islanders are variously thought to have come from North America, South America,

Egypt, Israel, and India, as well as Southeast Asia. ■ Many older theories implicitly deprecated the navigational abilities and overall cultural creativity of the Pacific islanders. ■ For example, British anthropologists G. Elliot Smith and W. J. Perry assumed that only Egyptians would have been skilled enough to navigate and colonize the Pacific. ■ They inferred that the Egyptians even crossed the Pacific to found the great civilizations of the New World (North and South America). ■ In 1947 Norwegian adventurer Thor Heyerdahl drifted on a balsa-log raft westward with the winds and currents across the Pacific from South America to prove his theory that Pacific islanders were Native Americans (also called American Indians). Later Heyerdahl suggested that the Pacific was peopled by three migrations: by Native Americans from the Pacific Northwest of North America drifting to Hawaii, by Peruvians drifting to Easter Island, and by Melanesians. In 1969 he crossed the Atlantic in an Egyptian-style reed boat to prove Egyptian influences in the Americas. Contrary to these theorists, the overwhelming evidence of physical anthropology, linguistics, and archaeology shows that the Pacific islanders came from Southeast Asia and were skilled enough as navigators to sail against the prevailing winds and currents.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Later theories concentrate on journeys in the other direction.

Where could the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some answer choices do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Together, Melanesia, Micronesia, and Polynesia make up the region described as the Pacific islands, or Oceania.

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-

Answer Choices

- The first Europeans to reach the area assumed that the islands' original inhabitants must have drifted to Oceania, perhaps from Egypt or the Americas.
- It is now believed that the process of colonization required a great deal of skill, determination, and planning and could not have happened by chance.
- Using linguistic and archaeological evidence, anthropologists have determined that the first Pacific islanders were Austronesian people from Southeast Asia.
- New evidence suggests that, rather than being isolated, Pacific islanders engaged in trade and social interaction with peoples living in Southeast Asia.
- Although early colonizers of the islands probably came from agriculture-based societies, they were obliged to adopt an economy based on fishing.
- Computer simulations of the winds and currents in the Pacific have shown that reaching the Pacific islands was probably much easier than previously thought.

参考答案:

1.○4

2.○1

3.○1

4.○2

5.○3

6.○2

7.○1

8.○4

9.○4

10.○3

11.○2

12.○3

13.○4

14. The first Europeans to...

It is now believed that...

Using linguistic and...

太平洋群岛居民的起源

广义的太平洋地区，传统上被称作大洋洲，由三块文化区域组成：美拉尼西亚，密克罗尼西亚和玻利尼西亚。美拉尼西亚，在西南太平洋，包含了新几内亚岛、所罗门、瓦努阿图和新喀里多尼亚的广大岛屿。密克罗尼西亚在美拉尼西亚的北边，主要由一些分散的岛屿组成。玻利尼西亚是太平洋中心地区，位于由夏威夷、东部群岛和新西兰的三大岛屿组成的三角区域中。在欧洲人到来之前，最大的玻利尼西亚和密克罗尼西亚岛屿群一共有差不多 70 万人口。

对于太平洋群岛居民起源的思索开始于外来者和岛民们的接触，由于缺乏可靠的语言，考古学和生物学资料，出现了很多奇异并且互斥的理论。之前太平洋居民曾被认为来自北美洲、南美洲、埃及、以色列和印度，以及东南亚。许多古老的理论含蓄地贬低了太平洋群岛居民的航海能力和综合文化创造力。比如说，英国人类学家 G. Elliot Smith 和 W. J. Perry 认为只有埃及人才能熟练地进行航海和统治太平洋。他们推断埃及人甚至曾经穿越过太平洋去寻找新世界的文明（北美和南美）。1947 年挪威探险家 Thor Heyerdahl 为了证明他太平洋居民是美洲本土居民（也被称作美洲印第安人）的理论，用一只带有标志的轻质木筏，借助风力和水流从南美洲漂流过了太平洋。后来 Heyerdahl 表明太平洋人来自三个移民群体：从北美洲西北漂流到夏威夷的美国本土居民，从秘鲁往东部群岛的漂流者，还有美拉尼西亚人。1969 年，他驾驶一条埃及样式的芦苇船穿过大西洋，证明埃及人在美洲的影响。与这些理论相矛盾的是，有关物理人类学、语言学和考古学的权威证据表明太平洋居民来自东南亚并且他们有足够的能力来逆着风向和洋流航行。

太平洋群岛成功的殖民地化需要的基础文化条件包括：适当的造船、航行和航海技术以首先到达岛屿；适应贫瘠条件的驯化植物和园艺技术；各种各样的捕鱼器具和技术。现在普遍认为这些先决条件是那些说南岛语（一个有几百种亲属语种的语系）的人所带来的，他们公元前 5000 年前就出现在东南亚。通过考古学和语言学的重建发现，那个时候的文明拥有广泛的植物储存，包括芋头、纱、香蕉、甘蔗、面包果树、椰子、西米和稻米。同样重要地，当时的社会也具备适应海洋的基础，包括桅杆船和各种各样有利于越洋航行的捕鱼技术。

与那个太平洋人很多都是玻利尼西亚人偶然迷失和漂流而定居下来的说法相反的是，这些功绩是通过有意的殖民远征来实现的，他们那些准备周详的，出发时满载食物、已驯化的植物和动物。通过电脑模拟对风向和洋流进行的详细研究表明船只漂流是最不可能的殖民太平洋的途径。这些远征可能是由本土的人口增长和政治动荡以及探索未知水域的挑战和兴奋所驱动的。因为所有的玻利尼西亚人、密克罗尼西亚人和很多美拉尼西亚人说南岛语，种植的庄稼起源于东南亚，所以全部的这些人最有可能来自那个地方，而不是新世界或者其他地方。甘薯，一种新世界的品种，哥伦比亚发现美洲大陆前它就在大洋洲的出现是无可置疑的，这有时候被用来证明 Heyerdahl 的美国印第安人在太平洋的理论。然而，这是一种在东南亚驯化植物的长名单之外的植物。正如美国人类学家 Patrick Kirch 所指出的，比起从南美漂流过来，土豆更容易被那些到过南美的玻利尼西亚返航者携带来。

The Cambrian Explosion

The geologic timescale is marked by significant geologic and biological events, including the origin of Earth about 4.6 billion years ago, the origin of life about 3.5 billion years ago, the origin of eukaryotic life-forms (living things that have cells with true nuclei) about 1.5 billion years ago, and the origin of animals about 0.6 billion years ago. The last event marks the beginning of the Cambrian period. Animals originated relatively late in the history of Earth—in only the last 10 percent of Earth’s history. During a geologically brief 100-million-year period, all modern animal groups (along with other animals that are now extinct) evolved. This rapid origin and diversification of animals is often referred to as “the Cambrian explosion.”

Scientists have asked important questions about this explosion for more than a century. Why did it occur so late in the history of Earth? The origin of multicellular forms of life seems a relatively simple step compared to the origin of life itself. Why does the fossil record not document the series of evolutionary changes during the evolution of animals? Why did animal life evolve so quickly? Paleontologists continue to search the fossil record for answers to these questions.

One interpretation regarding the absence of fossils during this important 100-million-year period is that early animals were soft bodied and simply did not fossilize. Fossilization of soft-bodied animals is less likely than fossilization of hard-bodied animals, but it does occur. Conditions that promote fossilization of soft-bodied animals include very rapid covering by sediments that create an environment that discourages decomposition. In fact, fossil beds containing soft-bodied animals have been known for many years.

The Ediacara fossil formation, which contains the oldest known animal fossils, consists exclusively of soft-bodied forms. Although named after a site in Australia, the Ediacara formation is worldwide in distribution and dates to Precambrian times. This 700-million-year-old formation gives few clues to the origins of modern animals, however, because paleontologists believe it represents an evolutionary experiment that failed. It contains no ancestors of modern animal groups.

A slightly younger fossil formation containing animal remains is the Tommotian formation, named after a locale in Russia. It dates to the very early Cambrian period, and it also contains only soft-bodied forms. At one time, the animals present in these fossil beds were assigned to various modern animal groups, but most paleontologists now agree that all Tommotian fossils represent unique body forms that arose in the early Cambrian period and disappeared before the end of the period, leaving no descendants in modern animal groups.

A third fossil formation containing both soft-bodied and hard-bodied animals provides evidence of the result of the Cambrian explosion. This fossil formation, called the Burgess Shale, is in Yoho National Park in the Canadian Rocky Mountains of British Columbia. Shortly after the Cambrian explosion, mud slides rapidly buried thousands of marine animals under conditions that favored fossilization. These fossil beds provide evidence of about 32 modern animal groups, plus about 20 other animal body forms that are so different from any modern animals that they cannot be assigned to any one of the modern groups. These unassignable animals include a large swimming predator called *Anomalocaris* and a soft-bodied animal called *Wiwaxia*, which ate detritus or algae. The Burgess Shale formation also has fossils of many extinct representatives of modern animal groups. For example, a well-known Burgess Shale animal called *Sidneyia* is a representative of a previously unknown group of arthropods (a category of animals that includes insects, spiders, mites, and crabs).

Fossil formations like the Burgess Shale show that evolution cannot always be thought of as a slow

progression. The Cambrian explosion involved rapid evolutionary diversification, followed by the extinction of many unique animals. Why was this evolution so rapid? No one really knows. Many zoologists believe that it was because so many ecological niches were available with virtually no competition from existing species. Will zoologists ever know the evolutionary sequences in the Cambrian explosion? Perhaps another ancient fossil bed of soft-bodied animals from 600-million-year-old seas is awaiting discovery.

Paragraph 1: The geologic timescale is marked by significant geologic and biological events, including the origin of Earth about 4.6 billion years ago, the origin of life about 3.5 billion years ago, the origin of eukaryotic life-forms (living things that have cells with true nuclei) about 1.5 billion years ago, and the origin of animals about 0.6 billion years ago. The last event marks the beginning of the Cambrian period. Animals originated relatively late in the history of Earth—in only the last 10 percent of Earth’s history. During a geologically brief 100-million-year period, all modern animal groups (along with other animals that are now extinct) evolved. This rapid origin and diversification of animals is often referred to as “the Cambrian explosion.”

1. The word “significant” in the passage is closest in meaning to
 - numerous
 - important
 - unexplained
 - sudden
2. The word “relatively” in the passage is closest in meaning to
 - surprisingly
 - collectively
 - comparatively
 - characteristically
3. The word “diversification” in the passage is closest in meaning to
 - emergence of many varieties
 - steady decline in number
 - gradual increase in body size
 - sudden disappearance

Paragraph 2: Scientists have asked important questions about this explosion for more than a century. Why did it occur so late in the history of Earth? The origin of multicellular forms of life seems a relatively simple step compared to the origin of life itself. Why does the fossil record not document the series of evolutionary changes during the evolution of animals? Why did animal life evolve so quickly? Paleontologists continue to search the fossil record for answers to these questions.

4. The period discussed in the passage is referred to as an “explosion” because it
 - occurred 0.6 billion years ago, late in Earth’s history
 - was characterized by the unusually fast evolution of many new life-forms
 - was characterized by widespread animal extinction
 - was characterized by violent volcanic eruptions
5. According to Paragraph 2, which of the following is NOT a question that paleontologists asked about the Cambrian explosion?
 - Why was the origin of life a simple step in Earth’s history?
 - Why did it take so long for multicellular organisms to develop?

-
- Why did animal life evolve so rapidly?
 - Why does the fossil record lack evidence of animal evolution during that time?

6. Which of the following best describes the relationship between paragraph 2 and paragraph 3?

- Paragraph 2 puts forward several scientific claims, one of which is rejected in paragraph 3.
- Paragraph 2 poses several questions, and paragraph 3 offers a possible answer to one of them.
- Paragraph 2 presents outdated traditional views, while paragraph 3 presents the current scientific conclusions.
- Paragraph 2 introduces a generalization that is illustrated by specific examples in paragraph 3.

Paragraph 3: One interpretation regarding the absence of fossils during this important 100-million-year period is that early animals were soft bodied and simply did not fossilize. Fossilization of soft-bodied animals is less likely than fossilization of hard-bodied animals, but it does occur. Conditions that **promote** fossilization of soft-bodied animals include very rapid covering by sediments that create an environment that discourages decomposition. In fact, fossil beds containing soft-bodied animals have been known for many years.

7. The word “**promote**” in the passage is closest in meaning to

- complicate
- prevent
- encourage
- affect

Paragraph 4: The Ediacara fossil formation, which contains the oldest known animal fossils, consists exclusively of soft-bodied forms. Although named after a site in Australia, the Ediacara formation is worldwide in distribution and dates to Precambrian times. This 700-million-year-old formation gives few clues to the origins of modern animals, however, because paleontologists believe it represents an evolutionary experiment that failed. It contains no ancestors of modern animal groups.

8. Which of the following is NOT mentioned in paragraph 4 as being true of the Ediacara formation?

- It contains fossils that date back to the Precambrian period.
- It contains only soft-bodied animal fossils.
- It is located on a single site in Australia.
- It does not contain any fossils of the ancestors of modern animals.

Paragraph 5: A slightly younger fossil formation containing animal remains is the Tommotian formation, named after a locale in Russia. It dates to the very early Cambrian period, and it also contains only soft-bodied forms. At one time, the animals present in these fossil beds were assigned to various modern animal groups, but most paleontologists now agree that all Tommotian fossils represent unique body forms that arose in the early Cambrian period and disappeared before the end of the period, leaving no descendants in modern animal groups.

9. Which of the sentences below best expresses the essential information in the **highlighted sentence** in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- The animals found in the Tommotian fossil bed were once thought to belong to a variety of modern animal groups, but now they are thought to have descended from a single group.
- Animals in the Tommotian fossil beds were initially assigned to modern animal groups but are now thought to belong to groups that emerged and died out during the Cambrian period.
- Though at first they thought otherwise, paleontologists now agree that the animals in the Tommotian have body forms from which modern animals have descended.

-
- It is unclear whether the Tommotian fossils from the early Cambrian period represent unique body forms or whether they should be assigned to various modern animal groups.

Paragraph 6: A third fossil formation containing both soft-bodied and hard-bodied animals provides evidence of the result of the Cambrian explosion. This fossil formation, called the Burgess Shale, is in Yoho National Park in the Canadian Rocky Mountains of British Columbia. Shortly after the Cambrian explosion, mud slides rapidly buried thousands of marine animals under conditions that favored fossilization. These fossil beds provide evidence of about 32 modern animal groups, plus about 20 other animal body forms that are so different from any modern animals that they cannot be assigned to any one of the modern groups. These unassignable animals include a large swimming predator called Anomalocaris and a soft-bodied animal called Wiwaxia, which ate detritus or algae. The Burgess Shale formation also has fossils of many extinct representatives of modern animal groups. For example, a well-known Burgess Shale animal called Sidneyia is a representative of a previously unknown group of arthropods (a category of animals that includes insects, spiders, mites, and crabs).

10. Why does the author mention "Anomalocaris" and "Wiwaxia"?
- To contrast predators with animals that eat plants such as algae
 - To question the effects of rapid mud slides on fossilization
 - To suggest that much is still unknown about animals found in the Burgess Shale
 - To provide examples of fossils that cannot be assigned to a modern animal group
11. "Sidneyia" is an example of
- a relative of *Anomalocaris* and *Wiwaxia*
 - a previously unknown Burgess Shale animal
 - an extinct member of a currently existing category of animals
 - an animal that cannot be assigned to any modern animal group

Paragraph 7: Fossil formations like the Burgess Shale show that evolution cannot always be thought of as a slow progression. The Cambrian explosion involved rapid evolutionary diversification, followed by the extinction of many unique animals. Why was this evolution so rapid? No one really knows. Many zoologists believe that it was because so many ecological niches were available with virtually no competition from existing species. Will zoologists ever know the evolutionary sequences in the Cambrian explosion? Perhaps another ancient fossil bed of soft-bodied animals from 600-million-year-old seas is awaiting discovery.

12. What can be inferred from paragraph 7 about why the Cambrian explosion is so unusual?
- It generated new ecological niches through the extinction of many unique animals.
 - It was a period of rapid evolution, and evolution is often thought of as a slow process.
 - It is a period whose evolutionary sequences are clearly marked.
 - It generated a very large number of ancient fossil beds containing soft-bodied animals.

Paragraph 3: One interpretation regarding the absence of fossils during this important 100-million-year period is that early animals were soft bodied and simply did not fossilize. ■ Fossilization of soft-bodied animals is less likely than fossilization of hard-bodied animals, but it does occur. ■ Conditions that promote fossilization of soft-bodied animals include very rapid covering by sediments that create an environment that discourages decomposition. ■ In fact, fossil beds containing soft-bodied animals have been known for many years. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

It is relatively rare because the fossilization of soft-bodied animals requires a special environment.

Where could the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some answer choices do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

The term “Cambrian explosion” refers to the geologically brief period during which all modern animal groups evolved.

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Answer Choices

○Little is known about the stages of evolution during the Cambrian period, in part because early animals were soft bodied and could fossilize only under particular conditions.

○While animal fossils from before the Cambrian explosion have no modern descendants, many animals that evolved during the Cambrian explosion can be assigned to modern groups.

○The Cambrian period is significant because it marks the emergence of eukaryotic life-forms—organisms that have cells with true nuclei.

○The Ediacara fossil formation provides the most information about the Cambrian explosion, while the earlier, Tommotian and Burgess Shale formations give clues about Precambrian evolution.

○Zoologists are awaiting the discovery of a 600-million-year-old fossil formation in order to be able to form a theory of how animal evolution progressed.

○Although the reasons for the rapid evolution of animals during the Cambrian period are not known, one proposed explanation is an abundance of niches with a lack of competitors.

参考答案:

1. ○2
2. ○3
3. ○1
4. ○2
5. ○1
6. ○2
7. ○3
8. ○3
9. ○2
10. ○4
11. ○3
12. ○2
13. ○2
14. Little is known about the...
 While animal fossils...
 Although the reasons for the...

寒武纪大爆发

地质年代是由重大地质事件和生物事件标记的，包括四十六亿年前地球的形成、三十五亿年前生命的起源、十五亿年前真核生物（细胞中有真核的生命体）的起源以及六亿年前动物的起源；最近的一个事件标志着寒武纪的开始。动物的起源相对处于地球历史的晚期——仅存在于地球历史时间的十分之一。在短暂的一亿年地质学周期中，所有现代动物群（包括现在已经灭绝的生物）进化了。这次快速的动物起源和分化产生的时期常常被称为“寒武纪大爆发”。

一个多世纪以来，科学家们对这次大爆发一直有疑惑。为什么它发生的得这么晚？多细胞生物的出现相对于生命的出现而言则是一次相对简单的进化。为什么化石没有记录下动物演化的一系列变化呢？为什么动物生命进化得如此迅速呢？古生物学家们仍旧在研究化石记录以期回答这些问题。

关于这重要的一亿年内化石的缺失，有一种解释是早期的动物都是软体动物，他们很难形成化石。软体动物的化石比硬体动物化石少见得多，但是也是可能发生的。促使软体动物成为化石的条件是沉积物的迅速覆盖以形成一个抑制分解的环境。事实上，含有软体动物的化石层在很多年以前就已经为人们所知了。

含有最古老的动物化石的伊迪卡拉化石群就全部由软体动物化石组成。尽管伊迪卡拉是以澳大利亚的一处地名而命名，但是伊迪卡拉沉积层的分布却遍及世界各地，并且可以追溯到前寒武纪时期。这些 7 亿年前形成的地层为现代动物的起源提供了一些新的线索。但是，由于古生物学家们认为它代表着一次失败的进化试验，所以，它并没有包含任何现代动物的祖先。

以俄罗斯的一处地名而命名的 **Tommotian** 是一层包含动物残骸的较年轻的化石层。它形成于寒武纪的早期，并且同样只含有软体动物化石。在一段时间内，人们认为这些化石中的动物分化出了各种各样的现代动物。但是古生物学家们现在却认为所有的 **Tommotian** 化石都仅代表在寒武纪初期出现但到寒武纪结束时就消失了的特别生物。所以它们没有在现在动物中留下任何后代。

第三种化石层既包含了软体动物也包含了硬体动物，它为寒武纪大爆发提供了证据。这种叫做伯吉斯页岩化石群就在加拿大的大不列颠哥伦比亚石山上的约霍国家公园内。在寒武纪大爆发后不久，滑落的泥土迅速的掩埋了成千上万的海洋动物，形成了极有利于化石形成的环境。这些化石层含有大约 32 种现代动物，还有大约 20 种与现在动物截然不同以致于不可能分类为任何一种现代动物的其他动物体。这些无法划分的动物包含一种叫做奇虾的肉食动物和一种叫做威瓦亚虫的以岩屑和藻类为食的软体动物。伯吉斯页岩化石群也含有很多现在已经灭绝了的动物化石。例如伯吉斯页岩化石群中的一种著名动物，**Sidneyia**，就是一种典型的以前还不为人知的节肢动物（一种动物分类，它包括昆虫、蜘蛛、螨虫和螃蟹）。

像伯吉斯页岩化石群这样的化石层表明进化不能总是被认为是缓慢的过程。寒武纪大爆涉及到了快速的进化分化，接着就是很多独特动物的灭绝。为什么这种进化如此迅速呢？没有人真正的明白。很多动物学家认为这是很多几乎没有任何竞争性物种的环境使然。动物学家们是否知道寒武纪大爆发的动物的进化顺序呢？或许另一些含有来自于 6 亿年前的海洋动物的化石亟待发现。

TPO-6

Powering the Industrial Revolution

In Britain one of the most dramatic changes of the Industrial Revolution was the harnessing of power. Until the reign of George III (1760-1820), available sources of power for work and travel had not increased since the Middle Ages. There were three sources of power: animal or human muscles; the wind, operating on sail or windmill; and running water. Only the last of these was suited at all to the continuous operating of machines, and although waterpower abounded in Lancashire and Scotland and ran grain mills as well as textile mills, it had one great disadvantage: streams flowed where nature intended them to, and water-driven factories had to be located on their banks whether or not the location was desirable for other reasons. Furthermore, even the most reliable waterpower varied with the seasons and disappeared in a drought. The new age of machinery, in short, could not have been born without a new source of both movable and constant power.

The source had long been known but not exploited. Early in the eighteenth century, a pump had come into use in which expanding steam raised a piston in a cylinder, and atmospheric pressure brought it down again when the steam condensed inside the cylinder to form a vacuum. This "atmospheric engine," invented by Thomas Savery and vastly improved by his partner, Thomas Newcomen, embodied revolutionary principles, but it was so slow and wasteful of fuel that it could not be employed outside the coal mines for which it had been designed. In the 1760s, James Watt perfected a separate condenser for the steam, so that the cylinder did not have to be cooled at every stroke; then he devised a way to make the piston turn a wheel and thus convert reciprocating (back and forth) motion into rotary motion. He thereby transformed an inefficient pump of limited use into a steam engine of a thousand uses. The final step came when steam was introduced into the cylinder to drive the piston backward as well as forward, thereby increasing the speed of the engine and cutting its fuel consumption.

Watt's steam engine soon showed what it could do. It liberated industry from dependence on running water. The engine eliminated water in the mines by driving efficient pumps, which made possible deeper and deeper mining. The ready availability of coal inspired William Murdoch during the 1790s to develop the first new form of nighttime illumination to be discovered in a millennium and a half. Coal gas rivaled smoky oil lamps and flickering candles, and early in the new century, well-to-do Londoners grew accustomed to gaslit houses and even streets. Iron manufacturers, which had starved for fuel while depending on charcoal, also benefited from ever-increasing supplies of coal: blast furnaces with steam-powered bellows turned out more iron and steel for the new machinery. Steam became the motive force of the Industrial Revolution as coal and iron ore were the raw materials.

By 1800 more than a thousand steam engines were in use in the British Isles, and Britain retained a virtual monopoly on steam engine production until the 1830s. Steam power did not merely spin cotton and roll iron; early in the new century, it also multiplied ten times over the amount of paper that a single worker could produce in a day. At the same time, operators of the first printing presses run by steam rather than by hand found it possible to produce a thousand pages in an hour rather than thirty. Steam also promised to eliminate a transportation problem not fully solved by either canal boats or turnpikes. Boats could carry heavy weights, but canals could not cross hilly terrain; turnpikes could cross the hills, but the roadbeds could not stand up under great weights. These problems needed still another solution, and the ingredients for it lay close at hand. In some industrial regions, heavily laden wagons, with flanged wheels, were being hauled by horses along metal rails; and the stationary steam engine was puffing in the factory and mine. Another generation passed before inventors

succeeded in combining these ingredients, by putting the engine on wheels and the wheels on the rails, so as to provide a machine to take the place of the horse. Thus the railroad age sprang from what had already happened in the eighteenth century.

Paragraph 1: In Britain one of the most dramatic changes of the Industrial Revolution was the harnessing of power. Until the reign of George III (1760-1820), available sources of power for work and travel had not increased since the Middle Ages. There were three sources of power: animal or human muscles; the wind, operating on sail or windmill; and running water. Only the last of these was suited at all to the continuous operating of machines, and although waterpower abounded in Lancashire and Scotland and ran grain mills as well as textile mills, it had one great disadvantage: streams flowed where nature intended them to, and water-driven factories had to be located on their banks whether or not the location was desirable for other reasons. Furthermore, even the most reliable waterpower varied with the seasons and disappeared in a drought. The new age of machinery, in short, could not have been born without a new source of both movable and constant power.

Paragraph 2: The source had long been known but not exploited. Early in the eighteenth century, a pump had come into use in which expanding steam raised a piston in a cylinder, and atmospheric pressure brought it down again when the steam condensed inside the cylinder to form a vacuum. This “atmospheric engine,” invented by Thomas Savery and vastly improved by his partner, Thomas Newcomen, embodied revolutionary principles, but it was so slow and wasteful of fuel that it could not be employed outside the coal mines for which it had been designed. In the 1760s, James Watt perfected a separate condenser for the steam, so that the cylinder did not have to be cooled at every stroke; then he devised a way to make the piston turn a wheel and thus convert reciprocating (back and forth) motion into rotary motion. He thereby transformed an inefficient pump of limited use into a steam engine of a thousand uses. The final step came when steam was introduced into the cylinder to drive the piston backward as well as forward, thereby increasing the speed of the engine and cutting its fuel consumption.

1. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Running water was the best power source for factories since it could keep machines operating continuously, but since it was abundant only in Lancashire and Scotland, most mills and factories that were located elsewhere could not be water driven.
- The disadvantage of using waterpower is that streams do not necessarily flow in places that are the most suitable for factories, which explains why so many water-powered grain and textile mills were located in undesirable places.
- Since machines could be operated continuously only where running water was abundant, grain and textile mills, as well as other factories, tended to be located only in Lancashire and Scotland.
- Running water was the only source of power that was suitable for the continuous operation of machines, but to make use of it, factories had to be located where the water was, regardless of whether such locations made sense otherwise.

2. Which of the following best describes the relation of paragraph 2 to paragraph 1?

- Paragraph 2 shows how the problem discussed in paragraph 1 arose.
- Paragraph 2 explains how the problem presented in paragraph 1 came to be solved.
- Paragraph 2 provides a more technical discussion of the problem introduced in paragraph 1.
- Paragraph 2 shows why the problem discussed in paragraph 1 was especially important to solve.

3. The word “exploited” in the passage is closest in meaning to

- utilized

-
- recognized
 - examined
 - fully understood

4. The word “vastly” in the passage is closest in meaning to
- quickly
 - ultimately
 - greatly
 - initially
5. According to paragraph 2, the “atmospheric engine” was slow because
- it had been designed to be used in coal mines
 - the cylinder had to cool between each stroke
 - it made use of expanding steam to raise the piston in its cylinder
 - it could be operated only when a large supply of fuel was available

Paragraph 2: The source had long been known but not exploited. Early in the eighteenth century, a pump had come into use in which expanding steam raised a piston in a cylinder, and atmospheric pressure brought it down again when the steam condensed inside the cylinder to form a vacuum. This “atmospheric engine,” invented by Thomas Savery and vastly improved by his partner, Thomas Newcomen, embodied revolutionary principles, but it was so slow and wasteful of fuel that it could not be employed outside the coal mines for which it had been designed. In the 1760s, James Watt perfected a separate condenser for the steam, so that the cylinder did not have to be cooled at every stroke; then he devised a way to make the piston turn a wheel and thus convert reciprocating (back and forth) motion into rotary motion. He thereby transformed an inefficient pump of limited use into a steam engine of a thousand uses. The final step came when steam was introduced into the cylinder to drive the piston backward as well as forward, thereby increasing the speed of the engine and cutting its fuel consumption.

6. According to paragraph 2, Watt's steam engine differed from earlier steam engines in each of the following ways EXCEPT:
- It used steam to move a piston in a cylinder.
 - It worked with greater speed.
 - It was more efficient in its use of fuel.
 - It could be used in many different ways.

Paragraph 3: Watt's steam engine soon showed what it could do. It liberated industry from dependence on running water. The engine eliminated water in the mines by driving efficient pumps, which made possible deeper and deeper mining. The ready availability of coal inspired William Murdoch during the 1790s to develop the first new form of nighttime illumination to be discovered in a millennium and a half. Coal gas rivaled smoky oil lamps and flickering candles, and early in the new century, well-to-do Londoners grew accustomed to gaslit houses and even streets. Iron manufacturers, which had starved for fuel while depending on charcoal, also benefited from ever-increasing supplies of coal: blast furnaces with steam-powered bellows turned out more iron and steel for the new machinery. Steam became the motive force of the Industrial Revolution as coal and iron ore were the raw materials.

7. In paragraph 3, the author mentions William Murdoch's invention of a new form of nighttime illumination in order to
- indicate one of the important developments made possible by the introduction of Watt's steam engine

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- make the point that Watt's steam engine was not the only invention of importance to the Industrial Revolution
 - illustrate how important coal was as a raw material for the Industrial Revolution
 - provide an example of another eighteenth-century invention that used steam as a power source

8. The phrase “grew accustomed to” in the passage is closest in meaning to

- began to prefer
- wanted to have
- became used to
- insisted on

Paragraph 4: By 1800 more than a thousand steam engines were in use in the British Isles, and Britain retained a virtual monopoly on steam engine production until the 1830s. Steam power did not merely spin cotton and roll iron; early in the new century, it also multiplied ten times over the amount of paper that a single worker could produce in a day. At the same time, operators of the first printing presses run by steam rather than by hand found it possible to produce a thousand pages in an hour rather than thirty. Steam also promised to eliminate a transportation problem not fully solved by either canal boats or turnpikes. Boats could carry heavy weights, but canals could not cross hilly terrain; turnpikes could cross the hills, but the roadbeds could not stand up under great weights. These problems needed still another solution, and the ingredients for it lay close at hand. In some industrial regions, heavily laden wagons, with flanged wheels, were being hauled by horses along metal rails; and the stationary steam engine was puffing in the factory and mine. Another generation passed before inventors succeeded in combining these ingredients, by putting the engine on wheels and the wheels on the rails, so as to provide a machine to take the place of the horse. Thus the railroad age sprang from what had already happened in the eighteenth century.

9. The word “retained” in the passage is closest in meaning to

- gained
- established
- profited from
- maintained

10. According to paragraph 4, which of the following statements about steam engines is true?

- They were used for the production of paper but not for printing.
- By 1800, significant numbers of them were produced outside of Britain.
- They were used in factories before they were used to power trains.
- They were used in the construction of canals and turnpikes.

11. According to paragraph 4, providing a machine to take the place of the horse involved combining which two previously separate ingredients?

- Turnpikes and canals
- Stationary steam engines and wagons with flanged wheels
- Metal rails in roadbeds and wagons capable of carrying heavy loads
- Canal boats and heavily laden wagons

Paragraph 3: ■Watt's steam engine soon showed what it could do. ■It liberated industry from dependence on running water. ■The engine eliminated water in the mines by driving efficient pumps, which made possible deeper and deeper mining. ■The ready availability of coal inspired William Murdoch during the 1790s to develop the first new form of nighttime illumination to be discovered in a millennium and a half. Coal gas rivaled smoky

oil lamps and flickering candles, and early in the new century, well-to-do Londoners grew accustomed to gaslit houses and even streets. Iron manufacturers, which had starved for fuel while depending on charcoal, also benefited from ever-increasing supplies of coal: blast furnaces with steam-powered bellows turned out more iron and steel for the new machinery. Steam became the motive force of the Industrial Revolution as coal and iron ore were the raw materials.

12. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

The factories did not have to go to the streams when power could come to the factories.

Where would the sentence best fit?

13. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

The Industrial Revolution would not have been possible without a new source of power that was efficient, movable, and continuously available.

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-
-

Answer Choices

- In the early eighteenth century, Savery and Newcomen discovered that expanding steam could be used to raise a piston in a cylinder.
- Watt's steam engine played a leading role in greatly increasing industrial production of all kinds.
- Until the 1830s, Britain was the world's major producer of steam engines.
- In the mid-1700s James Watt transformed an inefficient steam pump into a fast, flexible, fuel-efficient engine.
- In the 1790s William Murdoch developed a new way of lighting houses and streets using coal gas.
- The availability of steam engines was a major factor in the development of railroads, which solved a major transportation problem.

参考答案:

1. ○4

2. ○2

3. ○1

4. ○3

5. ○2

6. ○1

7. ○1.

8. ○3

9. ○4

10. ○3

11. ○2

12. ○3

13. Watt's steam engine played ...

In the mid-1700s James Watt...

The availability of steam...

驱动工业革命

在英国，工业革命带来的最大的变化之一就是动力的运用。从中世纪到乔治三世统治时期，用于劳作及行驶的动力一直没有得到发展。当时的驱动力仅限于三种：动物或人力；风力，用于航行或者风车；流水产生的动力。其中只有水力可以用于支持持续运转的机器，尽管在当时的兰开夏和苏格兰地区水力资源极其丰富，被用于谷物作坊和纺织厂，但这种动力存在一个极大的缺陷：水的流向是由自然因素决定的，因此，不论适不适合工厂选址，利用水利生产的工厂都必须建造在能够提供水资源动力的岸边。再者，即便是最可靠的水资源也会受到季节变化和干旱的影响。总之，没有可持续提供动力并且可移动的能源就没有新机械化时代的产生。

一直以来，人们很早就了解这种能源，不过没能成功开发。在十八世纪早期，泵曾被用于在气缸中使蒸汽推动活塞，气缸内部的蒸汽被压缩形成真空环境，大气压又使得活塞下降，这一由托马斯赛佛瑞发明并由他的同伴托马斯纽科门对其进行改良的“大气引擎”，被赋予了革命性的工作原理。但其效率低下且浪费燃料，无法在煤矿以外的地区使用，这与最初的设计期望背道而驰。十八世纪六十年代，詹姆斯瓦特完善了分离的蒸汽冷凝器，因此不必每次活塞运动后都要冷却气缸；随后，他又发明了一种新的方法，使得活塞可以旋转运动，即从原来的往复运动演变成成为循环运动，原本效率低下运用范围有限的活塞式结构从此演变成为得到广泛运用的蒸汽模式。最终，蒸汽被运用于汽缸中将活塞推回，从而加快了机器的运转速度并降低了能源消耗。

瓦特发明的蒸汽机很快就展现出了它的作用，把依赖水源的工业解放了出来。通过泵将矿井中的水排出，矿井能挖掘得更深。十八世纪末，由威廉默多克引领的煤炭利用，促成了一千五百年以来首例夜间照明设备的诞生。新世纪伊始，煤气在与冒烟的油灯和忽闪的蜡烛的比较中占净优势，经济富裕的伦敦人也开始习惯了煤气家用照明甚至街道照明。依赖于木炭供应的铁匠们亟需燃料，他们也受益于越来越多的煤炭供应。配备有蒸汽动力的鼓风炉使得越来越多的钢铁供应成为可能。蒸汽成为了工业革命中的主要动力，当时的煤矿和铁矿成为了是工业的主要原材料。

十九世纪时，英国已经拥有上千台蒸汽发动机，直到 19 世纪 30 年代以前，英国在蒸汽机的生产方面一直处于实质性垄断地位。蒸汽机不仅可以用于织布、炼铁，19 世纪早期，蒸汽机的使用同样大大提高了造纸的效率，蒸汽动力生产的产量是一个工人一天产量的 10 倍。那时，第一台利用蒸汽发动的印刷机 1 小时就能完成手动印刷机 30 小时完成的工作量。蒸汽动力还实现了运河及收费公路无法完全解决的运输问题。货船的确可以负荷重物，但人们无法利用运河在多山的区域实现运输，虽然利用公路可以穿实现在多山区域的运输，但路面的承载能力有限。这些问题都需要其他解决方法，解决问题所需要的条件其实唾手可得。在一些工业地区，四轮马车用于承载重物，它们配备有带凸的缘轮，通过马力拉车在铁轨上行驶；静止的蒸汽发动机广泛运用于工厂和矿井之中。直到过了一代，另一批发明家们才将这些条件成功组合在一起，给车轮配备上蒸汽动力，让轮子在铁路上运转，利用机器替代了原有的马。这就是铁路时代从十八世纪既有条件发展起来的过程。

William Smith

In 1769 in a little town in Oxfordshire, England, a child with the very ordinary name of William Smith was born into the poor family of a village blacksmith. He received rudimentary village schooling, but mostly he roamed his uncle's farm collecting the fossils that were so abundant in the rocks of the Cotswold hills. When he grew older, William Smith taught himself surveying from books he bought with his small savings, and at the age of eighteen he was apprenticed to a surveyor of the local parish. He then proceeded to teach himself geology, and when he was twenty-four, he went to work for the company that was excavating the Somerset Coal Canal in the south of England.

This was before the steam locomotive, and canal building was at its height. The companies building the canals to transport coal needed surveyors to help them find the coal deposits worth mining as well as to determine the best courses for the canals. This job gave Smith an opportunity to study the fresh rock outcrops created by the newly dug canal. He later worked on similar jobs across the length and breadth of England, all the while studying the newly revealed strata and collecting all the fossils he could find. Smith used mail coaches to travel as much as 10,000 miles per year. In 1815 he published the first modern geological map, "A Map of the Strata of England and Wales with a Part of Scotland," a map so meticulously researched that it can still be used today.

In 1831 when Smith was finally recognized by the Geological Society of London as the "father of English geology," it was not only for his maps but also for something even more important. Ever since people had begun to catalog the strata in particular outcrops, there had been the hope that these could somehow be used to calculate geological time. But as more and more accumulations of strata were cataloged in more and more places, it became clear that the sequences of rocks sometimes differed from region to region and that no rock type was ever going to become a reliable time marker throughout the world. Even without the problem of regional differences, rocks present a difficulty as unique time markers. Quartz is quartz—a silicon ion surrounded by four oxygen ions—there's no difference at all between two-million-year-old Pleistocene quartz and Cambrian quartz created over 500 million years ago.

As he collected fossils from strata throughout England, Smith began to see that the fossils told a different story from the rocks. Particularly in the younger strata, the rocks were often so similar that he had trouble distinguishing the strata, but he never had trouble telling the fossils apart. While rock between two consistent strata might in one place be shale and in another sandstone, the fossils in that shale or sandstone were always the same. Some fossils endured through so many millions of years that they appear in many strata, but others occur only in a few strata, and a few species had their births and extinctions within one particular stratum. Fossils are thus identifying markers for particular periods in Earth's history.

Not only could Smith identify rock strata by the fossils they contained, he could also see a pattern emerging: certain fossils always appear in more ancient sediments, while others begin to be seen as the strata become more recent. By following the fossils, Smith was able to put all the strata of England's earth into relative temporal sequence. About the same time, Georges Cuvier made the same discovery while studying the rocks around Paris. Soon it was realized that this principle of faunal (animal) succession was valid not only in England or France but virtually everywhere. It was actually a principle of floral succession as well, because plants showed the same transformation through time as did fauna. Limestone may be found in the Cambrian or—300 million years later—in the Jurassic strata, but a trilobite—the ubiquitous marine arthropod that had its birth in the

Cambrian—will never be found in Jurassic strata, nor a dinosaur in the Cambrian.

Paragraph 1: In 1769 in a little town in Oxfordshire, England, a child with the very ordinary name of William Smith was born into the poor family of a village blacksmith. He received rudimentary village schooling, but mostly he roamed his uncle's farm collecting the fossils that were so abundant in the rocks of the Cotswold hills. When he grew older, William Smith taught himself surveying from books he bought with his small savings, and at the age of eighteen he was apprenticed to a surveyor of the local parish. He then proceeded to teach himself geology, and when he was twenty-four, he went to work for the company that was excavating the Somerset Coal Canal in the south of England.

1. The word "rudimentary" in the passage is closest in meaning to
 - thorough
 - strict
 - basic
 - occasional
2. According to paragraph 1, which of the following statements about William Smith is NOT true?
 - Smith learned surveying by reading and by apprenticing for a local surveyor.
 - Smith's family lived in a small English town and possessed little wealth.
 - Smith learned about fossils from books he borrowed from his uncle.
 - Smith eventually left his village to work on the excavation of an English canal.

Paragraph 2: This was before the steam locomotive, and canal building was at its height. The companies building the canals to transport coal needed surveyors to help them find the coal deposits worth mining as well as to determine the best courses for the canals. This job gave Smith an opportunity to study the fresh rock outcrops created by the newly dug canal. He later worked on similar jobs across the length and breadth of England, all the while studying the newly revealed strata and collecting all the fossils he could find. Smith used mail coaches to travel as much as 10,000 miles per year. In 1815 he published the first modern geological map, "A Map of the Strata of England and Wales with a Part of Scotland," a map so meticulously researched that it can still be used today.

3. Which of the following can be inferred from paragraph 2 about canal building?
 - Canals were built primarily in the south of England rather than in other regions.
 - Canal building decreased after the steam locomotive was invented.
 - Canal building made it difficult to study rock strata which often became damaged in the process.
 - Canal builders hired surveyors like Smith to examine exposed rock strata.
4. According to paragraph 2, which of the following is true of the map published by William Smith?
 - It indicates the locations of England's major canals.
 - It became most valuable when the steam locomotive made rail travel possible.
 - The data for the map were collected during Smith's work on canals.
 - It is no longer regarded as a geological masterpiece.
5. The word "meticulously" in the passage is closest in meaning to
 - carefully
 - quickly
 - frequently

○obviously

Paragraph 3: In 1831 when Smith was finally recognized by the Geological Society of London as the “father of English geology,” it was not only for his maps but also for something even more important. Ever since people had begun to catalog the strata in particular outcrops, there had been the hope that these could somehow be used to calculate geological time. But as more and more accumulations of strata were cataloged in more and more places, it became clear that the sequences of rocks sometimes differed from region to region and that no rock type was ever going to become a reliable time marker throughout the world. Even without the problem of regional differences, rocks present a difficulty as unique time markers. Quartz is quartz—a silicon ion surrounded by four oxygen ions—there’s no difference at all between two-million-year-old Pleistocene quartz and Cambrian quartz created over 500 million years ago.

6. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- The discovery of regional differences in the sequences of rocks led geologists to believe that rock types could someday become reliable time markers.
- Careful analysis of strata revealed that rocks cannot establish geological time because the pattern of rock layers varies from place to place.
- Smith's catalogs of rock strata indicated that the sequences of rocks are different from place to place and from region to region.
- Because people did not catalog regional differences in sequences of rocks, it was believed that rocks could never be reliable time markers.

7. Why does the author use the phrase “Quartz is quartz”?

- To describe how the differences between Pleistocene and Cambrian quartz reveal information about dating rocks
- To point out that the chemical composition of quartz makes it more difficult to date than other rocks
- To provide an example of how regional differences in rock sequences can make a particular rock difficult to date
- To explain that rocks are difficult to use for dating because their chemical compositions always remain the same over time

Paragraph 4: As he collected fossils from strata throughout England, Smith began to see that the fossils told a different story from the rocks. Particularly in the younger strata, the rocks were often so similar that he had trouble distinguishing the strata, but he never had trouble telling the fossils apart. While rock between two consistent strata might in one place be shale and in another sandstone, the fossils in that shale or sandstone were always the same. Some fossils endured through so many millions of years that they appear in many strata, but others occur only in a few strata, and a few species had their births and extinctions within one particular stratum. Fossils are thus identifying markers for particular periods in Earth's history.

8. According to paragraph 4, it was difficult for Smith to distinguish rock strata because

- the rocks from different strata closely resembled each other
- he was often unable to find fossils in the younger rock strata
- their similarity to each other made it difficult for him to distinguish one rock type from another
- the type of rock between two consistent strata was always the same

9. The word “endured” in the passage is closest in meaning to

- vanished

-
- developed
 - varied
 - survived

Paragraph 5: Not only could Smith identify rock strata by the fossils they contained, he could also see a pattern emerging: certain fossils always appear in more ancient sediments, while others begin to be seen as the strata become more recent. By following the fossils, Smith was able to put all the strata of England's earth into relative temporal sequence. About the same time, Georges Cuvier made the same discovery while studying the rocks around Paris. Soon it was realized that this principle of faunal (animal) succession was valid not only in England or France but virtually everywhere. It was actually a principle of floral succession as well, because plants showed the same transformation through time as did fauna. Limestone may be found in the Cambrian or—300 million years later—in the Jurassic strata, but a trilobite—the ubiquitous marine arthropod that had its birth in the Cambrian—will never be found in Jurassic strata, nor a dinosaur in the Cambrian.

10. The word "virtually" in the passage is closest in meaning to

- possibly
- absolutely
- surprisingly
- nearly

11. Select the TWO answer choices that are true statements based upon the discussion of the principle of faunal succession in paragraph 5. To receive credit, you must select TWO answers.

- It was a principle that applied to fauna but not to flora.
- It was discovered independently by two different geologists.
- It describes how fossils are distributed in rock strata.
- It explains why plants and animals undergo transformations through time.

12. In mentioning "trilobite", the author is making which of the following points?

- Fossils cannot be found in more than one rock stratum.
- Faunal succession can help put rock layers in relative temporal sequence.
- Faunal succession cannot be applied to different strata composed of the same kind of rock.
- The presence of trilobite fossils makes it difficult to date a rock.

Paragraph 5: Not only could Smith identify rock strata by the fossils they contained, he could also see a pattern emerging: certain fossils always appear in more ancient sediments, while others begin to be seen as the strata become more recent. ■By following the fossils, Smith was able to put all the strata of England's earth into relative temporal sequence. ■About the same time, Georges Cuvier made the same discovery while studying the rocks around Paris. ■Soon it was realized that this principle of faunal (animal) succession was valid not only in England or France but virtually everywhere. ■It was actually a principle of floral succession as well, because plants showed the same transformation through time as did fauna. Limestone may be found in the Cambrian or—300 million years later—in the Jurassic strata, but a trilobite—the ubiquitous marine arthropod that had its birth in the Cambrian—will never be found in Jurassic strata, nor a dinosaur in the Cambrian.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage

The findings of these geologists inspired others to examine the rock and fossil records in different parts of the world.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

William Smith's contributions to geology have increased our knowledge of the Earth's history.

-
-
-

Answer Choices

- Smith found success easily in his profession because he came from a family of geologists and surveyors.
- Smith's work on canals allowed him to collect fossils and study rock layers all over England.
- Smith found that fossils are much more reliable indicators of geological time than rock strata are.
- Smith was named "the father of English geology" for his maps rather than for his other contributions to the field.
- Smith and Cuvier discovered that fossil patterns are easier to observe in ancient rock strata than in younger rock strata.
- The discovery of the principle of faunal succession allowed geologists to establish the relative age of Earth's rock layers.

参考答案:

1. ○3
2. ○3
3. ○2
4. ○3
5. ○1
6. ○2
7. ○4.
8. ○1
9. ○4
10. ○4
11. ○2, 3
12. ○2
13. ○3
14. Smith's work on canals allowed...
Smith found that fossils are...
The discovery of the principle...

在 1769 年英国牛津郡的一个小镇上，一个小男孩出生在村里一户穷铁匠家，他的名字很普通，叫做威廉·史密斯。史密斯只在村里的学校接受了最基本的教育，大部分的时间都是在他叔叔的农场里搜寻化石，这些化石在科茨沃尔德山的岩石里是很常见的。长大后，他开始用微薄的积蓄买书自学测量，18 岁时，史密斯成为了当地教区测量员的助理。后来，他又自学了地质学，24 岁时，他开始为挖掘英格兰南部 **Somerset Coal** 运河那家公司工作。

这些事情都发生在蒸汽火车发明之前，运河建筑正处于顶峰时期。他工作的那家公司致力于开掘一条运河来运输煤矿，需要测量员帮助他们探寻值得挖掘的煤矿所在地，并为他们决定最佳的运河路线。这份工作作为史密斯提供了一个机会，使他能够接触和学习那些因为运河开掘而露出地面的新鲜岩层。后来他仍从事类似的工作，行便全国，不断地研究那些新出现的地层，同时收集他所能发现的化石。史密斯乘着邮件马车每年行进将近 10000 英里。1815 年，他绘制了第一张现代地质学地图——英格兰威尔士及苏格兰部分地区地层地图，这张地质地图绘制得非常精确，直到现在仍有参考价值。

到了 1831 年，史密斯最终被伦敦地质学会认可，并赋予他“英国地质学之父”的称号，这不仅仅是因为那张地图，而且是为了其他更重要的原因。从人们开始对露出地面的特殊岩层进行分类的时候起，大家就开始认为这些岩石可能会以某种方式被用于计算地质年代。但是，随着各地越来越多的岩层积累和分类，岩层顺序也因地区的不同而不同，因此，全世界没有一种特定的岩层能被认作是划分地质年代的标志。即便排除区域差异的影响，人们面对岩石，还是存在一道难题，石英作为一种独特的时间标记——四个氧离子包围一个硅离子的化合物，而两百万年前的更新世石英和五亿年前形成的寒世纪的石英并无差别，这让人们束手无措。

史密斯在全英国的岩层中不断收集化石，后来他发现化石所反映的史实和岩石反映的完全不同，尤其是那些新产生的地层里的岩石，这些岩石非常类似，不易于区分地层。而区分其中的化石对史密斯来说简直就是轻而易举。在同层的地层中发现的岩石可能在这片地层中属于泥板岩，而在另一片地层中可能是砂岩，而在那些泥板岩或者砂岩中的化石往往都是一样的。有的化石经历了数百年万之久，它们存在于很多地层中间，但有的化石只存在于部分地层，还有一部分化石从出现至灭绝都只出现在一个特定的岩层中。因此，化石才是真正划分地球历史特定年代的指针。

史密斯不仅可以通过岩石中包含的化石来识别地层，而且可以看出他们显露出来的模式：一些特定的化石往往出现在更为久远的沉积物当中，而其他的化石则可以在距今年代较近的地层中发现。通过追踪化石，史密斯将英国范围内所有的地层进行了彼此出现时间的排序。同时，乔治居维叶在研究巴黎周围的岩石时也作出了同样的发现。很快人们就开始认识到，这种动物物种的延续性是符合逻辑的，不仅仅是在英国、法国，而实际上在全世界范围都是适用的。事实上，这一原则同样适用于证实植物的延续性，因为植物和动物一样，它们的化石也显示了时间的推移。人类有可能在侏罗纪时期的地层中发现寒世纪或者三亿年后的石灰岩，但绝不可能在侏罗纪时期地层中发现三叶虫化石（三叶虫是寒世纪非常普遍的水生节肢动物），也不可能发现寒世纪时期的恐龙化石。

Infantile Amnesia

What do you remember about your life before you were three? Few people can remember anything that happened to them in their early years. Adults' memories of the next few years also tend to be scanty. Most people remember only a few events—usually ones that were meaningful and distinctive, such as being hospitalized or a sibling's birth.

How might this inability to recall early experiences be explained? The sheer passage of time does not account for it; adults have excellent recognition of pictures of people who attended high school with them 35 years earlier. Another seemingly plausible explanation—that infants do not form enduring memories at this point in development—also is incorrect. Children two and a half to three years old remember experiences that occurred in their first year, and eleven month olds remember some events a year later. Nor does the hypothesis that infantile amnesia reflects repression—or holding back—of sexually charged episodes explain the phenomenon. While such repression may occur, people cannot remember ordinary events from the infant and toddler periods either.

Three other explanations seem more promising. One involves physiological changes relevant to memory. Maturation of the frontal lobes of the brain continues throughout early childhood, and this part of the brain may be critical for remembering particular episodes in ways that can be retrieved later. Demonstrations of infants' and toddlers' long-term memory have involved their repeating motor activities that they had seen or done earlier, such as reaching in the dark for objects, putting a bottle in a doll's mouth, or pulling apart two pieces of a toy. The brain's level of physiological maturation may support these types of memories, but not ones requiring explicit verbal descriptions.

A second explanation involves the influence of the social world on children's language use. Hearing and telling stories about events may help children store information in ways that will endure into later childhood and adulthood. Through hearing stories with a clear beginning, middle, and ending children may learn to extract the gist of events in ways that they will be able to describe many years later. Consistent with this view, parents and children increasingly engage in discussions of past events when children are about three years old. However, hearing such stories is not sufficient for younger children to form enduring memories. Telling such stories to two year olds does not seem to produce long-lasting verbalizable memories.

A third likely explanation for infantile amnesia involves incompatibilities between the ways in which infants encode information and the ways in which older children and adults retrieve it. Whether people can remember an event depends critically on the fit between the way in which they earlier encoded the information and the way in which they later attempt to retrieve it. The better able the person is to reconstruct the perspective from which the material was encoded, the more likely that recall will be successful.

This view is supported by a variety of factors that can create mismatches between very young children's encoding and older children's and adults' retrieval efforts. The world looks very different to a person whose head is only two or three feet above the ground than to one whose head is five or six feet above it. Older children and adults often try to retrieve the names of things they saw, but infants would not have encoded the information verbally. General knowledge of categories of events such as a birthday party or a visit to the doctor's office helps older individuals encode their experiences, but again, infants and toddlers are unlikely to encode many experiences within such knowledge structures.

These three explanations of infantile amnesia are not mutually exclusive; indeed, they support each other.

Physiological immaturity may be part of why infants and toddlers do not form extremely enduring memories, even when they hear stories that promote such remembering in preschoolers. Hearing the stories may lead preschoolers to encode aspects of events that allow them to form memories they can access as adults. Conversely, improved encoding of what they hear may help them better understand and remember stories and thus make the stories more useful for remembering future events. Thus, all three explanations—physiological maturation, hearing and producing stories about past events, and improved encoding of key aspects of events—seem likely to be involved in overcoming infantile amnesia.

Paragraph 2: How might this inability to recall early experiences be explained? The sheer passage of time does not account for it; adults have excellent recognition of pictures of people who attended high school with them 35 years earlier. Another seemingly plausible explanation—that infants do not form enduring memories at this point in development—also is incorrect. Children two and a half to three years old remember experiences that occurred in their first year, and eleven month olds remember some events a year later. Nor does the hypothesis that infantile amnesia reflects repression—or holding back—of sexually charged episodes explain the phenomenon. While such repression may occur, people cannot remember ordinary events from the infant and toddler periods either.

1. What purpose does paragraph 2 serve in the larger discussion of children’s inability to recall early experiences?

- To argue that theories that are not substantiated by evidence should generally be considered unreliable
- To argue that the hypotheses mentioned in paragraph 2 have been more thoroughly researched than have the theories mentioned later in the passage
- To explain why some theories about infantile amnesia are wrong before presenting ones more likely to be true
- To explain why infantile amnesia is of great interest to researchers

2. The word “plausible” in the passage is closest in meaning to

- flexible
- believable
- debatable
- predictable

3. The word “phenomenon” in the passage is closest in meaning to

- exception
- repetition
- occurrence
- idea

4. All of the following theories about the inability to recall early experiences are rejected in paragraph 2 EXCEPT:

- The ability to recall an event decreases as the time after the event increases.
- Young children are not capable of forming memories that last for more than a short time.
- People may hold back sexually meaningful memories.
- Most events in childhood are too ordinary to be worth remembering.

Paragraph 3: Three other explanations seem more promising. One involves physiological changes relevant to memory. Maturation of the frontal lobes of the brain continues throughout early childhood, and this part of the

brain may be critical for remembering particular episodes in ways that can be retrieved later. Demonstrations of infants' and toddlers' long-term memory have involved their repeating motor activities that they had seen or done earlier, such as reaching in the dark for objects, putting a bottle in a doll's mouth, or pulling apart two pieces of a toy. The brain's level of physiological maturation may support these types of memories, but not ones requiring explicit verbal descriptions.

5. What does paragraph 3 suggest about long-term memory in children?

- Maturation of the frontal lobes of the brain is important for the long-term memory of motor activities but not verbal descriptions.
- Young children may form long-term memories of actions they see earlier than of things they hear or are told.
- Young children have better long-term recall of short verbal exchanges than of long ones.
- Children's long-term recall of motor activities increases when such activities are accompanied by explicit verbal descriptions.

Paragraph 4: A second explanation involves the influence of the social world on children's language use. Hearing and telling stories about events may help children store information in ways that will endure into later childhood and adulthood. Through hearing stories with a clear beginning, middle, and ending children may learn to extract the gist of events in ways that they will be able to describe many years later. Consistent with this view, parents and children increasingly engage in discussions of past events when children are about three years old. However, hearing such stories is not sufficient for younger children to form enduring memories. Telling such stories to two year olds does not seem to produce long-lasting verbalizable memories.

6. According to paragraph 4, what role may storytelling play in forming childhood memories?

- It may encourage the physiological maturing of the brain.
- It may help preschool children tell the difference between ordinary and unusual memories.
- It may help preschool children retrieve memories quickly.
- It may provide an ordered structure that facilitates memory retrieval.

Paragraph 5: A third likely explanation for infantile amnesia involves incompatibilities between the ways in which infants encode information and the ways in which older children and adults retrieve it. Whether people can remember an event depends critically on the fit between the way in which they earlier encoded the information and the way in which they later attempt to retrieve it. The better able the person is to reconstruct the perspective from which the material was encoded, the more likely that recall will be successful.

7. The word "critically" in the passage is closest in meaning to

- fundamentally
- partially
- consistently
- subsequently

8. The word "perspective" in the passage is closest in meaning to

- system
- theory
- source
- viewpoint

Paragraph 6: This view is supported by a variety of factors that can create mismatches between very young

children's encoding and older children's and adults' retrieval efforts. The world looks very different to a person whose head is only two or three feet above the ground than to one whose head is five or six feet above it. Older children and adults often try to retrieve the names of things they saw, but infants would not have encoded the information verbally. General knowledge of categories of events such as a birthday party or a visit to the doctor's office helps older individuals encode their experiences, but again, infants and toddlers are unlikely to encode many experiences within such knowledge structures.

9. The phrase “This view” in the passage refers to the belief that

- the ability to retrieve a memory partly depends on the similarity between the encoding and retrieving process
- the process of encoding information is less complex for adults than it is for young adults and infants
- infants and older children are equally dependent on discussion of past events for the retrieval of information
- infants encode information in the same way older children and adults do

10. According to paragraphs 5 and 6, one disadvantage very young children face in processing information is that they cannot

- process a lot of information at one time
- organize experiences according to type
- block out interruptions
- interpret the tone of adult language

Paragraph 7: These three explanations of infantile amnesia are not mutually exclusive; indeed, they support each other. Physiological immaturity may be part of why infants and toddlers do not form extremely enduring memories, even when they hear stories that promote such remembering in preschoolers. Hearing the stories may lead preschoolers to encode aspects of events that allow them to form memories they can access as adults. Conversely, improved encoding of what they hear may help them better understand and remember stories and thus make the stories more useful for remembering future events. Thus, all three explanations—physiological maturation, hearing and producing stories about past events, and improved encoding of key aspects of events—seem likely to be involved in overcoming infantile amnesia.

11. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Incomplete physiological development may partly explain why hearing stories does not improve long-term memory in infants and toddlers.
- One reason why preschoolers fail to comprehend the stories they hear is that they are physiologically immature.
- Given the chance to hear stories, infants and toddlers may form enduring memories despite physiological immaturity.
- Physiologically mature children seem to have no difficulty remembering stories they heard as preschoolers.

12. How does paragraph 7 relate to the earlier discussion of infantile amnesia?

- It introduces a new theory about the causes of infantile amnesia.
- It argues that particular theories discussed earlier in the passage require further research.
- It explains how particular theories discussed earlier in the passage may work in combination.
- It evaluates which of the theories discussed earlier is most likely to be true.

Paragraph 1: What do you remember about your life before you were three? ■ Few people can remember anything that happened to them in their early years. ■ Adults' memories of the next few years also tend to be scanty. ■ Most people remember only a few events—usually ones that were meaningful and distinctive, such as being hospitalized or a sibling's birth. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage
Other important occasions are school graduations and weddings.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

There are several possible explanations why people cannot easily remember their early childhoods.

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-
-

Answer Choices

- Preschoolers typically do not recall events from their first year.
- Frontal lobe function of the brain may need to develop before memory retrieval can occur.
- Children recall physical activities more easily if they are verbalized.
- The opportunity to hear chronologically narrated stories may help three-year-old children produce long-lasting memories.
- The content of a memory determines the way in which it is encoded.
- The contrasting ways in which young children and adults process information may determine their relative success in remembering.

参考答案:

1. ○3
2. ○2
3. ○3
4. ○4
5. ○2
6. ○4
7. ○1
8. ○4
9. ○1
10. ○2
11. ○1
12. ○3
13. ○4
14. Frontal lobe function...
 - The opportunity to hear...
 - The contrasting ways in...

婴幼儿健忘症

三岁前生活中发生事情你还记得多少？很少有人能记得婴幼儿时期曾经发生在他们身上的事情。成年人对三岁之后那几年的记忆也很稀疏。大部分人只记得那些很少的特殊的事情，比如住院或者弟弟妹妹的出生。

人们无法回忆起幼年事情的现象该如何解释呢？恐怕时间的流逝无法阐述清楚，成年人对 35 年前的高中同学照片仍可进行清楚地辨认。一种看似合理的解释认为，婴儿时期，孩子正在发展对发生的事情尚未形成永久性记忆，这种说法并不准确。两岁半到三岁的孩子能够记得他们一岁时候的事情，比他们大 11 个月的孩子也记得一年前的事情。那些假设婴幼儿健忘症反映了孩子们对充满性欲的插曲的压制和隐藏，同样也解释不通。这种压制发生的时候，人们连孩提时代最普通的事情都是无法回忆起来的。

除此之外的三种解释似乎更具说服力。一种观点认涉及记忆相关的生理变化。孩子们早期的童年时代中，脑前叶不断地成熟，它对记忆发生的特殊事件以及之后对这些事情的回想起着至关重要的作用。婴幼儿长期记忆的形成，还会涉及到他们之前早期看到的或者自身经历的活动的重复，比如：到黑暗的环境里取东西，把瓶子塞到了洋娃娃的嘴里，或者将玩具撕成两半等。除了那些需要清晰语言描述的事件之外，大脑生理成熟的程度足以帮助他们记得这些特殊事件。

第二种观点与社会环境对孩子运用语言的影响有关。听故事和讲故事将有助于储存信息，直到他们的童年和成年。听故事的时候有个清晰的开头、情节和结尾会帮助孩子们提取事件的要点，并且使他们在过了很多年以后仍然可以描述这些事情。越来越多的家长们会在孩子三岁左右的时候和他们讨论过去发生的事情，这也与该理论一致。然而，仅仅听这些故事还是不足以帮更年幼的孩子形成永久的记忆。给两岁的孩子讲故事，并不能使他们形成语言化的记忆。

第三种可能的解释认为婴幼儿健忘症与婴儿储存信息的方式和成年后进行回忆的方式不相容有关。人们是否能够回忆起一件事情的关键在于这两种方式的匹配程度。两种方式越匹配，越有助于人们成功回忆之前发生的事情。

事实上，很多因素会导致婴幼儿储存信息的方式和成年人进行回忆的方式不匹配。对于一个头离地面两三尺的孩子来说，这个世界与那些稍大点的孩子眼中的世界不尽相同。长大后的孩子和成人经常试图回忆那些他们曾经见过的事物的名字，但在他们的幼儿时期时尚未对此进行语言化的信息储存。人们对类似生日聚会或者拜访医生诊所类似事件的分类常识有助于人们记忆他们的经历，但是，婴幼儿时期的孩子们似乎缺乏这些知识结构来帮助他们储存信息。

以上三种关于幼儿期遗忘的解释实际上并非互斥，他们是相互支持的。学龄前孩子听到那些可以促进他们回忆的故事时，生理上的不成熟是导致他们无法形成长久记忆的原因之一。听那些故事将有助于学龄前孩子在脑中储存已经发生的事情，以便形成他们可以像成年人那样自由提取的记忆。相反，将他们听到的故事进行更进一步的编码将有助于他们更好地理解 and 记忆，因此，那些故事将对他们记住将来发生的事情更有帮助。综上所述，生理上的成熟、听故事和讲故事以及改进对事件关键信息的编码都有助于克服婴幼儿遗忘症。

The Geologic History of the Mediterranean

In 1970 geologists Kenneth J. Hsu and William B.F. Ryan were collecting research data while aboard the oceanographic research vessel *Glomar Challenger*. An objective of this particular cruise was to investigate the floor of the Mediterranean and to resolve questions about its geologic history. One question was related to evidence that the invertebrate fauna (animals without spines) of the Mediterranean had changed abruptly about 6 million years ago. Most of the older organisms were nearly wiped out, although a few hardy species survived. A few managed to migrate into the Atlantic. Somewhat later, the migrants returned, bringing new species with them. Why did the near extinction and migrations occur?

Another task for the *Glomar Challenger*'s scientists was to try to determine the origin of the domelike masses buried deep beneath the Mediterranean seafloor. These structures had been detected years earlier by echo-sounding instruments, but they had never been penetrated in the course of drilling. Were they salt domes such as are common along the United States Gulf Coast, and if so, why should there have been so much solid crystalline salt beneath the floor of the Mediterranean?

With question such as these clearly before them, the scientists aboard the *Glomar Challenger* processed to the Mediterranean to search for the answers. On August 23, 1970, they recovered a sample. The sample consisted of pebbles of hardened sediment that had once been soft, deep-sea mud, as well as granules of gypsum and fragments of volcanic rock. Not a single pebble was found that might have indicated that the pebbles came from the nearby continent. In the days following, samples of solid gypsum were repeatedly brought on deck as drilling operations penetrated the seafloor. Furthermore, the gypsum was found to possess peculiarities of composition and structure that suggested it had formed on desert flats. Sediment above and below the gypsum layer contained tiny marine fossils, indicating open-ocean conditions. As they drilled into the central and deepest part of the Mediterranean basin, the scientists took solid, shiny, crystalline salt from the core barrel. Interbedded with the salt were thin layers of what appeared to be windblown silt.

The time had come to formulate a hypothesis. The investigators theorized that about 20 million years ago, the Mediterranean was a broad seaway linked to the Atlantic by two narrow straits. Crustal movements closed the straits, and the landlocked Mediterranean began to evaporate. Increasing salinity caused by the evaporation resulted in the extermination of scores of invertebrate species. Only a few organisms especially tolerant of very salty conditions remained. As evaporation continued, the remaining brine (salt water) became so dense that the calcium sulfate of the hard layer was precipitated. In the central deeper part of the basin, the last of the brine evaporated to precipitate more soluble sodium chloride (salt). Later, under the weight of overlying sediments, this salt flowed plastically upward to form salt domes. Before this happened, however, the Mediterranean was a vast desert 3,000 meters deep. Then, about 5.5 million years ago came the deluge. As a result of crustal adjustments and faulting, the Strait of Gibraltar, where the Mediterranean now connects to the Atlantic, opened, and water cascaded spectacularly back into the Mediterranean. Turbulent waters tore into the hardened salt flats, broke them up, and ground them into the pebbles observed in the first sample taken by the *Challenger*. As the basin was refilled, normal marine organisms returned. Soon layer of oceanic ooze began to accumulate above the old hard layer.

The salt and gypsum, the faunal changes, and the unusual gravel provided abundant evidence that the

Mediterranean was once a desert.

gypsum: a mineral made of calcium sulfate and water

Paragraph 1: In 1970 geologists Kenneth J. Hsu and William B.F. Ryan were collecting research data while aboard the oceanographic research vessel Glomar Challenger. An **objective** of this particular cruise was to investigate the floor of the Mediterranean and to resolve questions about its geologic history. One question was related to evidence that the invertebrate fauna (animals without spines) of the Mediterranean had changed abruptly about 6 million years ago. Most of the older organisms were nearly wiped out, although a few hardy species survived. A few managed to migrate into the Atlantic. Somewhat later, the migrants returned, bringing new species with them. Why did the near extinction and migrations occur?

1. The word "**objective**" in the passage is closest in meaning to
 - achievement
 - requirement
 - purpose
 - feature
2. Which of the following is NOT mentioned in paragraph 1 as a change that occurred in the fauna of the Mediterranean?
 - Most invertebrate species disappeared during a wave of extinctions.
 - A few hardy species wiped out many of the Mediterranean's invertebrates.
 - Some invertebrates migrated to Atlantic Ocean.
 - New species of fauna populated the Mediterranean when the old migrants returned.

Paragraph 3: With question such as these clearly before them, the scientists aboard the Glomar Challenger processed to the Mediterranean to search for the answers. On August 23, 1970, they recovered a sample. The sample consisted of pebbles of hardened sediment that had once been soft, deep-sea mud, as well as granules of gypsum and fragments of volcanic rock. **Not a single pebble was found that might have indicated that the pebbles came from the nearby continent.** In the days following, samples of solid gypsum were repeatedly brought on deck as drilling operations penetrated the seafloor. Furthermore, the gypsum was found to possess peculiarities of composition and structure that suggested it had formed on desert flats. Sediment above and below the gypsum layer contained tiny marine fossils, indicating open-ocean conditions. As they drilled into the central and deepest part of the Mediterranean basin, the scientists took solid, shiny, crystalline salt from the core barrel. Interbedded with the salt were thin layers of what appeared to be windblown silt.

3. What does the author imply by saying "**Not a single pebble was found that might have indicated that the pebbles came from the nearby continent**"?
 - The most obvious explanation for the origin of the pebbles was not supported by the evidence.
 - The geologists did not find as many pebbles as they expected.
 - The geologists were looking for a particular kind of pebble.
 - The different pebbles could not have come from only one source.
4. Which of the following can be inferred from paragraph 3 about the solid gypsum layer?
 - It did not contain any marine fossil.
 - It had formed in open-ocean conditions.
 - It had once been soft, deep-sea mud.

-
- It contained sediment from nearby deserts.

5. Select the TWO answer choice from paragraph 3 that identify materials discovered in the deepest part of the Mediterranean basin. To receive credit you must select TWO answers.

- Volcanic rock fragments.
- Thin silt layers
- Soft, deep-sea mud
- Crystalline salt

6. What is the main purpose of paragraph 3?

- To describe the physical evidence collected by Hsu and Ryan
- To explain why some of the questions posed earlier in the passage could not be answered by the findings of the Glomar Challenger
- To evaluate techniques used by Hsu and Ryan to explore the sea floor
- To describe the most difficult problems faced by the Glomar Challenger expedition

Paragraph 4: The time had come to formulate a hypothesis. The investigators theorized that about 20 million years ago, the Mediterranean was a broad seaway linked to the Atlantic by two narrow straits. Crustal movements closed the straits, and the landlocked Mediterranean began to evaporate. Increasing salinity caused by the evaporation resulted in the extermination of scores of invertebrate species. Only a few organisms especially tolerant of very salty conditions remained. As evaporation continued, the remaining brine (salt water) became so dense that the calcium sulfate of the hard layer was precipitated. In the central deeper part of the basin, the last of the brine evaporated to precipitate more soluble sodium chloride (salt). Later, under the weight of overlying sediments, this salt flowed plastically upward to form salt domes. Before this happened, however, the Mediterranean was a vast desert 3,000 meters deep. Then, about 5.5 million years ago came the deluge. As a result of crustal adjustments and faulting, the Strait of Gibraltar, where the Mediterranean now connects to the Atlantic, opened, and water cascaded spectacularly back into the Mediterranean. Turbulent waters tore into the hardened salt flats, broke them up, and ground them into the pebbles observed in the first sample taken by the Challenger. As the basin was refilled, normal marine organisms returned. Soon layer of oceanic ooze began to accumulate above the old hard layer.

7. According to paragraph 4, which of the following was responsible for the evaporation of the Mediterranean's waters?

- The movements of Earth's crust
- The accumulation of sediment layers
- Changes in the water level of the Atlantic Ocean
- Changes in Earth's temperature

8. The word "scores" in the passage is closest in meaning to

- members
- large numbers
- populations
- different types

9. According to paragraph 4, what caused most invertebrate species in the Mediterranean to become extinct?

- The evaporation of chemicals necessary for their survival
- Crustal movements that connected the Mediterranean to the saltier Atlantic
- The migration of new species through the narrow straits

-
- Their inability to tolerate the increasing salt content of the Mediterranean

10. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- The strait of Gibraltar reopened when the Mediterranean and the Atlantic became connected and the cascades of water from one sea to the other caused crustal adjustments and faulting.
- The Mediterranean was dramatically refilled by water from the Atlantic when crustal adjustments and faulting opened the Strait of Gibraltar, the place where the two seas are joined.
- The cascades of water from the Atlantic to the Mediterranean were not as spectacular as the crustal adjustments and faulting that occurred when the Strait of Gibraltar was connected to those seas.
- As a result of crustal adjustments and faulting and the creation of the Strait of Gibraltar, the Atlantic and Mediterranean were connected and became a single sea with spectacular cascades of water between them.

11. The word "Turbulent" in the passage is closest in meaning to

- Fresh
- Deep
- Violent
- Temperate

Paragraph 2 ■ Another task for the Glomar Challenger's scientists was to try to determine the origin of the domelike masses buried deep beneath the Mediterranean seafloor. ■ These structures had been detected years earlier by echo-sounding instruments, but they had never been penetrated in the course of drilling. ■ Were they salt domes such as are common along the United States Gulf Coast, and if so, why should there have been so much solid crystalline salt beneath the floor of the Mediterranean? ■

12. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Thus, scientists had information about the shape of the domes but not about their chemical composition and origin.

Where would the sentence best fit?

13. Direction: An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

An expedition to the Mediterranean answered some long-standing questions about the ocean's history.

-
-
-

Answer choices

- The Glomar Challenger expedition investigated changes in invertebrate fauna and some unusual geologic features.
- Researchers collected fossils to determine which new species migrated from the Atlantic with older species.
- Scientists aboard the Glomar Challenger were the first to discover the existence of domelike masses underneath the seafloor.
- Samples recovered from the expedition revealed important differences in chemical composition and fossil distribution among the sediment layers.
- Evidence collected by the Glomar Challenger supports geologists' beliefs that the Mediterranean had

evaporated and become a desert, before it refilled with water.

○Mediterranean salt domes formed after crustal movements opened the straits between the Mediterranean and the Atlantic, and the Mediterranean refilled with water.

参考答案:

1.○ 3

2.○ 2

3.○ 1

4.○ 1

5.○ 2, 4

6.○ 1

7.○ 1

8○ 2

9.○ 4

10.○ 2

11.○ 3

12.○ 3

13. The Glomar Challenger...

Samples recovered from...

Evidence collected by...

地中海的地质历史

1970 年, 地理学家 **Kenneth J. Hsu** 和 **William B.F. Ryan** 曾在海洋调查船 **Glomar Challenger** 号上致力收集调研资料。这次特别巡航的一个目的是调查地中海的地层以及解决关于其地质历史的问题。其中一个问题是有关地中海地区无脊椎动物(没有脊椎的动物) **600** 百万年前发生剧变的证据。大部分古老的生物都几乎灭绝了, 尽管一些顽强的种类得以生存。一些动物成功地迁移到了大西洋。不久后, 这些动物又回来了, 并带回来新的物种。为什么这最近的动物灭绝和迁移会发生呢?

Glomar Challenger 号上科学家们的另一个任务是尝试去确定深埋在地中海海底穹顶状巨块的起源。这些结构在早些年被回声探测器探测过, 但是它们在探测过程中从未被穿透。它们是像美国海湾海岸一带的含盐圆顶状巨块吗? 如果是的话, 为什么在地中海海底之下会有这么多坚硬的结晶盐呢?

带着这些清楚摆在他们面前的问题, 科学家们登上 **Glomar Challenger** 号前往地中海寻找答案。1970 年 8 月 23 日, 他们恢复了一个样本。这个样本由石膏鹅卵石和火山岩碎块组成。周围没有鹅卵石被发现, 这可能说明这些小石头不来自附近的大陆。接下来的日子里, 随着海底岩层穿透实验的进行, 石膏固体样本被不断地放在甲板上。而且, 这些膏状物的组成和结构特性表明它们形成于沙漠。在石膏层上下的沉积物中包含了微小的海洋生物化石, 这说明了开放性的海洋环境。当钻到地中海盆地中心的最深处时, 科学家们从钻管中获得了坚实的、光亮的结晶盐。跟结晶盐相互嵌在一起的薄层像是被风吹起的泥沙层。

时间明确地阐明了一个假设。调查者们构思了这样的理论: 大约 **2000** 万年前, 地中海是一条宽阔的航道, 它通过两条狭窄的海峡与大西洋连接。地壳运动封闭了海峡, 被陆地包围的地中海也开始蒸发。由蒸发引起的越来越高的盐度造成无脊椎动物种类的灭绝。只有一些能抵抗高盐度条件的物种保留下来。随着蒸发的继续进行, 盐水浓度太高以致硬地层的硫酸钙发生沉淀。在盆地的中间深处, 剩余盐水的持续蒸发形成更多的可溶的氯化钠(盐)。后来, 在上层沉淀物的重压下, 盐向上形成了含盐的圆顶。然而在这之前, 地中海是一个 **3000** 米深的大沙漠。然后, **550** 万年前发生了洪水。作为地壳调整和断层作用的结果, 现在连接地中海和大西洋的直布罗陀海峡打开了, 水流像瀑布一样壮观地涌回地中海。湍急的水流冲击并摧毁了坚硬的含盐层, 使把它们磨成了 **Challenger** 号获得的第一份样品中所观察到的鹅卵石。随着盆地的填充, 普通的海洋生物又回来了。不久后海洋软泥层开始在老的硬地层上堆积。

盐、石膏、动物区系的变更, 还有不寻常的沙砾层都为地中海曾经是块沙漠的理论提供了充分的证据。

Ancient Rome and Greece

There is a quality of cohesiveness about the Roman world that applied neither to Greece nor perhaps to any other civilization, ancient or modern. Like the stone of Roman wall, which were held together both by the regularity of the design and by that peculiarly powerful Roman cement, so the various parts of the Roman realm were bonded into a massive, monolithic entity by physical, organizational, and psychological controls. The physical bonds included the network of military garrisons, which were stationed in every province, and the network of stone-built roads that linked the provinces with Rome. The organizational bonds were based on the common principles of law and administration and on the universal army of officials who enforced common standards of conduct. The psychological controls were built on fear and punishment—on the absolute certainty that anyone or anything that threatened the authority of Rome would be utterly destroyed.

The source of Roman obsession with unity and cohesion may well have lain in the pattern of Rome's early development. Whereas Greece had grown from scores of scattered cities, Rome grew from one single organism. While the Greek world had expanded along the Mediterranean seas lanes, the Roman world was assembled by territorial conquest. Of course, the contrast is not quite so stark: in Alexander the Great the Greeks had found the greatest territorial conqueror of all time; and the Romans, once they moved outside Italy, did not fail to learn the lessons of sea power. Yet the essential difference is undeniable. The key to the Greek world lay in its high-powered ships; the key to Roman power lay in its marching legions. The Greeks were wedded to the sea; the Romans, to the land. The Greek was a sailor at heart; the Roman, a landsman.

Certainly, in trying to explain the Roman phenomenon, one would have to place great emphasis on this almost instinct for the territorial imperative. Roman priorities lay in the organization, exploitation, and defense of their territory. In all probability it was the fertile plain of Latium, where the Latins who founded Rome originated, that created the habits and skills of landed settlement, landed property, landed economy, landed administration, and a land-based society. From this arose the Roman genius for military organization and orderly government. In turn, a deep attachment to the land, and to the stability which rural life engenders, fostered the Roman virtues: *gravitas*, a sense of responsibility, *peitas*, a sense of devotion to family and country, and *iustitia*, a sense of the natural order.

Modern attitudes to Roman civilization range from the infinitely impressed to the thoroughly disgusted. As always, there are the power worshippers, especially among historians, who are predisposed to admire whatever is strong, who feel more attracted to the might of Rome than to the subtlety of Greece. At the same time, there is a solid body of opinion that dislikes Rome. For many, Rome is at best the imitator and the continuator of Greece on a larger scale. Greek civilization had quality; Rome, mere quantity. Greece was original; Rome, derivative. Greece had style; Rome had money. Greece was the inventor; Rome, the research and development division. Such indeed was the opinion of some of the more intellectual Romans. "Had the Greeks held novelty in such disdain as we," asked Horace in his epistle, "what work of ancient date would now exist?"

Rome's debt to Greece was enormous. The Romans adopted Greek religion and moral philosophy. In literature, Greek writers were consciously used as models by their Latin successors. It was absolutely accepted that an educated Roman should be fluent in Greek. In speculative philosophy and the sciences, the Romans made virtually no advance on early achievements.

Yet it would be wrong to suggest that Rome was somehow a junior partner in Greco-Roman civilization. The Roman genius was projected into new spheres—especially into those of law, military organization, administration, and engineering. Moreover, the tensions that arose within the Roman state produced literary and artistic sensibilities of the

highest order. It was no accident that many leading Roman soldiers and statesmen were writers of high caliber.

Paragraph 1: There is a quality of cohesiveness about the Roman world that applied neither to Greece nor perhaps to any other civilization, ancient or modern. Like the stone of Roman wall, which were held together both by the regularity of the design and by that peculiarly powerful Roman cement, so the various parts of the Roman realm were bonded into a massive, monolithic entity by physical, organizational, and psychological controls. The physical bonds included the network of military garrisons, which were stationed in every province, and the network of stone-built roads that linked the provinces with Rome. The organizational bonds were based on the common principles of law and administration and on the universal army of officials who enforced common standards of conduct. The psychological controls were built on fear and punishment—on the absolute certainty that anyone or anything that threatened the authority of Rome would be utterly destroyed.

1. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- The regularity and power of stone walls inspired Romans attempting to unify the parts of their realm.
- Although the Romans used different types of designs when building their walls, they used regular controls to maintain their realm.
- Several types of control united the Roman realm, just as design and cement held Roman walls together.
- Romans built walls to unite the various parts of their realm into a single entity, which was controlled by powerful laws.

2. According to paragraph 1, all of the following are controls that held together the Roman world EXCEPT

- administrative and legal systems
- the presence of the military
- a common language
- transportation networks

Paragraph 2: The source of Roman obsession with unity and cohesion may well have lain in the pattern of Rome's early development. Whereas Greece had grown from scores of scattered cities, Rome grew from one single organism. While the Greek world had expanded along the Mediterranean seas lanes, the Roman world was assembled by territorial conquest. Of course, the contrast is not quite so stark: in Alexander the Great the Greeks had found the greatest territorial conqueror of all time; and the Romans, once they moved outside Italy, did not fail to learn the lessons of sea power. Yet the essential difference is undeniable. The key to the Greek world lay in its high-powered ships; the key to Roman power lay in its marching legions. The Greeks were wedded to the sea; the Romans, to the land. The Greek was a sailor at heart; the Roman, a landsman.

3. The phrase "obsession with" in the passage is closest in meaning to

- thinking about
- fixation on
- interest in
- attitude toward

4. According to paragraph 2, which of the following was NOT characteristic of Rome's early development?

- Expansion by sea invasion
- Territorial expansion
- Expansion from one original settlement
- Expansion through invading armies

5. Why does the author mention “Alexander the Great” in the passage?

- To acknowledge that Greek civilization also expanded by land conquest
- To compare Greek leaders to Roman leaders
- To give an example of Greek leader whom Romans studied
- To indicate the superior organization of the Greek military

Paragraph 3: Certainly, in trying to explain the Roman phenomenon, one would have to place great emphasis on this almost instinct for the territorial imperative. Roman priorities lay in the organization, exploitation, and defense of their territory. In all probability it was the fertile plain of Latium, where the Latins who founded Rome originated, that created the habits and skills of landed settlement, landed property, landed economy, landed administration, and a land-based society. From this arose the Roman genius for military organization and orderly government. In turn, a deep attachment to the land, and to the stability which rural life engenders, fostered the Roman virtues: gravitas, a sense of responsibility, peitas, a sense of devotion to family and country, and iustitia, a sense of the natural order.

6. The word “fostered” in the passage is closest in meaning to

- accepted
- combined
- introduced
- encouraged

7. Paragraph 3 suggests which of the following about the people of Latium?

- Their economy was based on trade relations with other settlements.
- They held different values than the people of Rome.
- Agriculture played a significant role in the society.
- They possessed unusual knowledge of animal instincts.

Paragraph 4: Modern attitudes to Roman civilization range from the infinitely impressed to the thoroughly disgusted. As always, there are the power worshippers, especially among historians, who are predisposed to admire whatever is strong, who feel more attracted to the might of Rome than to the subtlety of Greece. At the same time, there is a solid body of opinion that dislikes Rome. For many, Rome is at best the imitator and the continuator of Greece on a larger scale. Greek civilization had quality; Rome, mere quantity. Greece was original; Rome, derivative. Greece had style; Rome had money. Greece was the inventor; Rome, the research and development division. Such indeed was the opinion of some of the more intellectual Romans. “Had the Greeks held novelty in such disdain as we,” asked Horace in his epistle, “what work of ancient date would now exist?”

8. Paragraph 4 indicates that some historians admire Roman civilization because of

- the diversity of cultures within Roman society
- its strength
- its innovative nature
- the large body of literature that it developed

9. In paragraph 4, the author develops a description of Roman civilization by

- comparing the opinions of Roman intellectuals to Greek intellectuals
- identifying which characteristics of Roman civilization were copied from Greece
- explaining how the differences between Roman and Greece developed as time passed
- contrasting characteristics of Roman civilization with characteristics of Greek civilization

10. According to paragraph 4, intellectual Romans such as Horace held which of the following opinions about their

civilization?

- Ancient works of Greece held little value in the Roman world.
- The Greek civilization had been surpassed by the Romans.
- Roman civilization produced little that was original or memorable.
- Romans valued certain types of innovations that had been ignored by ancient Greeks.

Paragraph 5: Rome's debt to Greece was enormous. The Romans adopted Greek religion and moral philosophy. In literature, Greek writers were consciously used as models by their Latin successors. It was absolutely accepted that an educated Roman should be fluent in Greek. In speculative philosophy and the sciences, the Romans made virtually no advance on early achievements.

Paragraph 6: Yet it would be wrong to suggest that Rome was somehow a junior partner in Greco-Roman civilization. The Roman genius was projected into new **spheres**—especially into those of law, military organization, administration, and engineering. Moreover, the tensions that arose within the Roman state produced literary and artistic sensibilities of the highest order. It was no accident that many leading Roman soldiers and statesmen were writers of high caliber.

11. The word "**spheres**" in the passage is closest in meaning to

- abilities
- areas
- combinations
- models

12. Which of the following statements about leading Roman soldiers and statesmen is supported by paragraphs 5 and 6?

- They could read and write the Greek language.
- They frequently wrote poetry and plays.
- They focused their writing on military matters.
- They wrote according to the philosophical laws of the Greeks.

Paragraph 4: Modern attitudes to Roman civilization range from the infinitely impressed to the thoroughly disgusted. ■As always, there are the power worshippers, especially among historians, who are predisposed to admire whatever is strong, who feel more attracted to the might of Rome than to the subtlety of Greece. ■At the same time, there is a solid body of opinion that dislikes Rome. ■For many, Rome is at best the imitator and the continuator of Greece on a larger scale. ■Greek civilization had quality; Rome, mere quantity. Greece was original; Rome, derivative. Greece had style; Rome had money. Greece was the inventor; Rome, the research and development division. Such indeed was the opinion of some of the more intellectual Romans. "Had the Greeks held novelty in such disdain as we," asked Horace in his epistle, "what work of ancient date would now exist?"

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

They esteem symbols of Roman power, such as the massive Colosseum.

Where would the sentence best fit?

14. **Direction:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question worth 2 points.**

The Roman world drew its strength from several important sources.

-
- -
 -

Answer choices

- Numerous controls imposed by Roman rulers held its territory together.
- The Roman military was organized differently from older military organizations.
- Romans valued sea power as did the Latins, the original inhabitants of Rome.
- Roman values were rooted in a strong attachment to the land and the stability of rural life.
- Rome combined aspects of ancient Greek civilization with its own contributions in new areas.
- Educated Romans modeled their own literature and philosophy on the ancient Greeks.

参考答案:

1. ○ 3
2. ○ 3
3. ○ 2
4. ○ 1
5. ○ 1
6. ○ 4
7. ○ 3
8. ○ 2
9. ○ 4
10. ○ 3
11. ○ 2
12. ○ 1
13. ○ 2
14. Numerous controls imposed...
 - Roman values were rooted...
 - Rome combined aspects of...

古代罗马和希腊

罗马具有一种希腊和其他任何不论是古代还是现在文明都不具备的凝聚力。罗马墙上的石块是靠设计的规整和特别有力的粘合剂而被固定在一起，与此相同罗马帝国的各个部分也因物理的、组织的和精神的束缚而组成了一个坚若磐石的整体。物理的束缚包括驻扎在每个省的戍卫军组成的网络和联通每个省与罗马的、用石头铺成的道路网络。组织上的羁绊则基于法律和行政的一般原则，以及遍布各地、统一行动的军政府。精神上的控制则建立在恐惧和惩罚上——毫无疑问的是任何人，或任何事，只要威胁到罗马的权威，都终将被摧毁。

罗马人对统一和团结的执着可能源自于罗马早期的发展模式。希腊是从二十几个分散的城邦发展而来，然而罗马则是从单个组织发展而来。希腊沿着地中海扩张，然而罗马帝国则通过领土的占领而壮大。当然，他们的对比也不是那么的绝对：在亚历山大大帝时期，希腊找到了他们整个历史中最大的领地征服者；罗马人虽曾一度迁移到意大利之外，但他们却没有荒废海洋的力量。然而，他们之间本质的区别是不容否认的。希腊世界的关键是强大的舰队，而罗马帝国的关键则是他们行进的部队。希腊人死守着海洋，罗马人则死守着土地。希腊人是天生的水手，罗马人则是陆上强兵。

毫无疑问的是，为了解释罗马现象，人们应该极大的强调他们的几乎是本能的领土观念。罗马人的天性就在于对领土的组织、扩张和防御。完全也可能是 **Latium** 平原——拉丁人最初建立罗马的地方，造就了罗马人陆地定居、陆地财产、陆地经济、陆地行政以及以陆地基础社会的性格和技巧。在此基础上也产生了罗马人的军事组织和政府管理的才能。反过来，对土地以及稳定乡村生活的深深的依恋孕育了罗马人的品格：**gravitas**，一种责任感；**peitas**，对家庭和国家的牺牲精神；以及 **iustitia**，一种对自然秩序的使命。

现在人们对罗马的态度各异，从无限的崇尚到彻底的反感。经常有权威的崇拜者，尤其是在历史学家中，不由自主的推崇强大，他们对罗马权力的欣赏远胜于对希腊狡黠的欣赏。与此同时，有一种固化的观念厌恶罗马。对于很多人而言，罗马至多不过是对希腊更大规模的模仿和延续，希腊文明拥有质量，罗马则仅仅拥有数量。希腊是发明者，而罗马则是研究和发展的分支。这些实际上是一些高智商罗马人的观点。“难道希腊人创造出新的事物后，我们就会被认为是如此的微不足道吗？”**Horace** 在他的信件中问道“古时候的什么工作现在还存在呢？”

罗马受希腊影响很大。罗马人吸收了希腊人的宗教和伦理哲学。在文学上，希腊作家被下意识的当作他们拉丁后裔的模范。毋庸置疑的是一个受过教育的罗马人一定会讲流利的希腊语。在推理哲学和科学上，罗马人实际上没有超过前期希腊的成就。

然而如果认为罗马是希腊-罗马文化的晚辈那就错了。罗马的天才们突破了新的领域——尤其是在法律、军队的组织、管理学和工程学上。而且，由罗马国家内部产生的压力促使文学和艺术的造诣达到最高水平。所以很多罗马的高级军官和政治家们都是高素质的作家。

Agriculture, Iron, and the Bantu Peoples

There is evidence of agriculture in Africa prior to 3000 B.C. It may have developed independently, but many scholars believe that the spread of agriculture and iron throughout Africa linked it to the major centers of the Near East and Mediterranean world. The drying up of what is now the Sahara desert had pushed many peoples to the south into sub-Saharan Africa. These peoples settled at first in scattered hunting-and-gathering bands, although in some places near lakes and rivers, people who fished, with a more secure food supply, lived in larger population concentrations. Agriculture seems to have reached these people from the Near East, since the first domesticated crops were millets and sorghums whose origins are not African but west Asian. Once the idea of planting diffused, Africans began to develop their own crops, such as certain varieties of rice, and they demonstrated a continued receptiveness to new imports. The proposed areas of the domestication of African crops lie in a band that extends from Ethiopia across southern Sudan to West Africa. Subsequently, other crops, such as bananas, were introduced from Southeast Asia.

Livestock also came from outside Africa. Cattle were introduced from Asia, as probably were domestic sheep and goats. Horses were apparently introduced by the Hyksos invaders of Egypt (1780-1560 B.C.) and then spread across the Sudan to West Africa. Rock paintings in the Sahara indicate that horses and chariots were used to traverse the desert and that by 300-200 B.C., there were trade routes across the Sahara. Horses were adopted by peoples of the West African savannah, and later their powerful cavalry forces allowed them to carve out large empires. Finally, the camel was introduced around the first century A.D. This was an important innovation, because the camel's abilities to thrive in harsh desert conditions and to carry large loads cheaply made it an effective and efficient means of transportation. The camel transformed the desert from a barrier into a still difficult, but more accessible, route of trade and communication.

Iron came from West Asia, although its routes of diffusion were somewhat different than those of agriculture. Most of Africa presents a curious case in which societies moved directly from a technology of stone to iron without passing through the intermediate stage of copper or bronze metallurgy, although some early copper-working sites have been found in West Africa. Knowledge of iron making penetrated into the forest and savannahs of West Africa at roughly the same time that iron making was reaching Europe. Evidence of iron making has been found in Nigeria, Ghana, and Mali.

This technological shift caused profound changes in the complexity of African societies. Iron represented power. In West Africa the blacksmith who made tools and weapons had an important place in society, often with special religious powers and functions. Iron hoes, which made the land more productive, and iron weapons, which made the warrior more powerful, had symbolic meaning in a number of West African societies. Those who knew the secrets of making iron gained ritual and sometimes political power.

Unlike in the Americas, where metallurgy was a very late and limited development, Africans had iron from a relatively early date, developing ingenious furnaces to produce the high heat needed for production and to control the amount of air that reached the carbon and iron ore necessary for making iron. Much of Africa moved right into the Iron Age, taking the basic technology and adapting it to local conditions and resources.

The diffusion of agriculture and later of iron was accompanied by a great movement of people who may have carried these innovations. These people probably originated in eastern Nigeria. Their migration may have been

set in motion by an increase in population caused by a movement of peoples fleeing the desiccation, or drying up, of the Sahara. They spoke a language, proto-Bantu (“Bantu” means “the people”), which is the parent tongue of a language of a large number of Bantu languages still spoken throughout sub-Saharan Africa. Why and how these people spread out into central and southern Africa remains a mystery, but archaeologists believe that their iron weapons allowed them to conquer their hunting-gathering opponents, who still used stone implements. Still, the process is uncertain, and peaceful migration—or simply rapid demographic growth—may have also caused the Bantu explosion.

Paragraph 1: There is evidence of agriculture in Africa prior to 3000 B.C. It may have developed independently, but many scholars believe that the spread of agriculture and iron throughout Africa linked it to the major centers of the Near East and Mediterranean world. The drying up of what is now the Sahara desert had pushed many peoples to the south into sub-Saharan Africa. These peoples settled at first in scattered hunting-and-gathering bands, although in some places near lakes and rivers, people who fished, with a more secure food supply, lived in larger population concentrations. Agriculture seems to have reached these people from the Near East, since the first domesticated crops were millets and sorghums whose origins are not African but west Asian. Once the idea of planting **diffused**, Africans began to develop their own crops, such as certain varieties of rice, and they demonstrated a continued receptiveness to new imports. The proposed areas of the domestication of African crops lie in a band that extends from Ethiopia across southern Sudan to West Africa. Subsequently, other crops, such as bananas, were introduced from Southeast Asia.

1. The word “**diffused**” in the passage is closest in meaning to
 - emerged
 - was understood
 - spread
 - developed
2. According to paragraph 1, why do researchers doubt that agriculture developed independently in Africa?
 - African lakes and rivers already provided enough food for people to survive without agriculture.
 - The earliest examples of cultivated plants discovered in Africa are native to Asia.
 - Africa’s native plants are very difficult to domesticate.
 - African communities were not large enough to support agriculture.
3. In paragraph 1, what does the author imply about changes in the African environment during this time period?
 - The climate was becoming milder, allowing for a greater variety of crops to be grown.
 - Although periods of drying forced people south, they returned once their food supply was secure.
 - Population growth along rivers and lakes was dramatically decreasing the availability of fish.
 - A region that had once supported many people was becoming a desert where few could survive.

Paragraph 2: Livestock also came from outside Africa. Cattle were introduced from Asia, as probably were domestic sheep and goats. Horses were apparently introduced by the Hyksos invaders of Egypt (1780-1560 B.C.) and then spread across the Sudan to West Africa. Rock paintings in the Sahara indicate that horses and chariots were used to traverse the desert and that by 300-200 B.C., there were trade routes across the Sahara. Horses were adopted by peoples of the West African savannah, and later their powerful cavalry forces allowed them to carve out large empires. Finally, the camel was introduced around the first century A.D. This was an important innovation, because the camel’s abilities to thrive in harsh desert conditions and to carry large loads cheaply made it an effective and efficient means of transportation. The camel transformed the desert from a barrier into a

still difficult, but more accessible, route of trade and communication.

4. According to paragraph 2, camels were important because they
- were the first domesticated animal to be introduced to Africa
 - allowed the people of the West African savannahs to carve out large empires
 - helped African peoples defend themselves against Egyptian invaders
 - made it cheaper and easier to cross the Sahara
5. According to paragraph 2, which of the following were subjects of rock paintings in the Sahara?
- Horses and chariots
 - Sheep and goats
 - Hyksos invaders from Egypt
 - Camels and cattle

Paragraph 3: Iron came from West Asia, although its routes of diffusion were somewhat different than those of agriculture. Most of Africa presents a curious case in which societies moved directly from a technology of stone to iron without passing through the intermediate stage of copper or bronze metallurgy, although some early copper-working sites have been found in West Africa. Knowledge of iron making penetrated into the forest and savannahs of West Africa at roughly the same time that iron making was reaching Europe. Evidence of iron making has been found in Nigeria, Ghana, and Mali.

6. What function does paragraph 3 serve in the organization of the passage as a whole?
- It contrasts the development of iron technology in West Asia and West Africa.
 - It discusses a non-agricultural contribution to Africa from Asia.
 - It introduces evidence that a knowledge of copper working reached Africa and Europe at the same time.
 - It compares the rates at which iron technology developed in different parts of Africa.

Paragraph 4: This technological shift cause profound changes in the complexity of African societies. Iron represented power. In West Africa the blacksmith who made tools and weapons had an important place in society, often with special religious powers and functions. Iron hoes, which made the land more productive, and iron weapons, which made the warrior more powerful, had symbolic meaning in a number of West Africa societies. Those who knew the secrets of making iron gained ritual and sometimes political power.

7. The word "profound" in the passage is closest in meaning to
- fascinating
 - far-reaching
 - necessary
 - temporary
8. The word "ritual" in the passage is closest in meaning to
- military
 - physical
 - ceremonial
 - permanent

9. According to paragraph 4, all of the following were social effects of the new metal technology in Africa EXCEPT:

- Access to metal tools and weapons created greater social equality.

-
- Metal weapons increased the power of warriors.
 - Iron tools helped increase the food supply.
 - Technical knowledge gave religious power to its holders.

Paragraph 5: Unlike in the Americas, where metallurgy was a very late and limited development, Africans had iron from a relatively early date, developing ingenious furnaces to produce the high heat needed for production and to control the amount of air that reached the carbon and iron ore necessary for making iron. Much of Africa moved right into the Iron Age, taking the basic technology and adapting it to local conditions and resources.

10. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- While American iron makers developed the latest furnaces, African iron makers continued using earlier techniques.
- Africans produced iron much earlier than Americans, inventing technologically sophisticated heating systems.
- Iron making developed earlier in Africa than in the Americas because of the ready availability of carbon and iron ore.
- Both Africa and the Americas developed the capacity for making iron early, but African metallurgy developed at a slower rate.

Paragraph 6: The diffusion of agriculture and later of iron was accompanied by a great movement of people who may have carried these innovations. These people probably originated in eastern Nigeria. Their migration may have been set in motion by an increase in population caused by a movement of peoples fleeing the desiccation, or drying up, of the Sahara. They spoke a language, proto-Bantu (“Bantu” means “the people”), which is the parent tongue of a language of a large number of Bantu languages still spoken throughout sub-Saharan Africa. Why and how these people spread out into central and southern Africa remains a mystery, but archaeologists believe that their iron weapons allowed them to conquer their hunting-gathering opponents, who still used stone implements. Still, the process is uncertain, and peaceful migration—or simply rapid demographic growth—may have also caused the Bantu explosion.

11. The word “fleeing” in the passage is closest in meaning to

- afraid of
- displaced by
- running away from
- responding to

12. Paragraph 6 mentions all of the following as possible causes of the “Bantu explosion” EXCEPT

- superior weapons
- better hunting skills
- peaceful migration
- increased population

Paragraph 6: The diffusion of agriculture and later of iron was accompanied by a great movement of people who may have carried these innovations. These people probably originated in eastern Nigeria. ■Their migration may have been set in motion by an increase in population caused by a movement of peoples fleeing the desiccation, or drying up, of the Sahara. ■They spoke a language, proto-Bantu (“Bantu” means “the people”), which is the parent tongue of a language of a large number of Bantu languages still spoken throughout

sub-Saharan Africa. Why and how these people spread out into central and southern Africa remains a mystery, but archaeologists believe that their iron weapons allowed them to conquer their hunting-gathering opponents, who still used stone implements. ■ Still, the process is uncertain, and peaceful migration—or simply rapid demographic growth—may have also caused the Bantu explosion. ■

13. Look at the four squares ■ that indicate where the following sentence could be added to the passage.

These people had a significant linguistic impact on the continent as well.

Where would the sentence best fit?

14. **Direction:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Agriculture and iron working probably spread to Africa from neighboring regions.

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-
-

Answer choices

- Once Africans developed their own crops, they no longer borrowed from other regions.
- The harshness of the African climate meant that agriculture could not develop until after the introduction of iron tools.
- The use of livestock improved transportation and trade and allowed for new forms of political control.
- As the Sahara expanded, the camel gained in importance, eventually coming to have religious significance.
- The spread of iron working had far-reaching effects on social, economic, and political organization in Africa.
- Today's Bantu-speaking peoples are descended from a technologically advanced people who spread throughout Africa.

参考答案:

1. ○3
2. ○2
3. ○4
4. ○4
5. ○1
6. ○2
7. ○2
8. ○3
9. ○1
10. ○2
11. ○3
12. ○2
13. ○2
14. The use of livestock improved...
The spread of iron working...
Today's Bantu-speaking peoples...

参考译文：

农业、铁器和班图人

在非洲，早在公元前 3000 年以前就有了农业的迹象。它可能是独立发展的，但很多学者认为农业和铁器在非洲的传播将费中与近东的中心和地中海世界联系了起来。就是现在的撒哈拉沙漠地区的不断变得干旱使得很多人向南迁徙到撒哈拉沙漠以南的非洲地区。这些部落起初分散的定居，并仍靠打猎和采集维生，尽管是在靠近湖泊和河流的地区人们以捕鱼为业，有较稳定的食物供给，聚集了较多的人口。农业技术可能来自于近东最终为非洲人所知，因为最初驯化的农作物是起源于西亚而不是非洲的小米和高粱。一旦种植的思想传播开来，非洲人就开始培育他们自己的农作物，比如某些水稻，并且他们一直愿意接受新的外来作物。人们认为驯化非洲作物的地区从埃塞俄比亚一直延伸到苏丹的南部，再到西非。接下来，其他的作物，比如香蕉，就从南亚传入到非洲了。

家禽也来自于非洲以外的地区。牛是从亚洲引入的，家养绵羊和山羊也可能是这样的。马匹显然是由欧洲的 Hyksos 入侵者（1780-1560B.C.）引入的之后就传从苏丹传到西非。撒哈拉石画表明马匹和马车曾被用于穿越沙漠，并且，在公元前 300 年到 200 年间，有商队横穿撒哈拉沙漠的路线。西非大草原上的人们使用马匹，后来他们强大的骑兵力量使他们缔造了庞大的帝国。最后，骆驼大约在公元一世纪被引入到非洲。这是一次重要革新，因为骆驼有能力生存在恶劣的沙漠环境，另外，骆驼可以便宜的运输大量的载荷，这使得它们成为了一种方便高效的运输方式。骆驼使得沙漠从障碍转换为一条虽依然艰难但已经更加容易接近的商路和交流通道。

铁器来自于西亚，虽然它传播的路径跟农业技术的不同。大部分非洲表现出一种奇怪的现象，那就是他们社会直接从石器时代进步到铁器时代，而没有经过中间过渡的铜器或青铜器冶金术，尽管在西亚发现了一些早期使用铜器的地区。冶铁技术在差不多到达欧洲的同时，就穿过了森林和大草原到达非洲。在尼日尼亚，加纳和马里发现了制作铁器的证据。

科技的革新对非洲社会的复杂性产生了深刻的改变。铁器代表着力量。在西非的很多社会里，生产工具的铁匠、使土地更多产的铁锄、使战士更强大的铁制武器都有着象征意义。这些对西非社会有着标志性的意义。那些掌握了制铁技术的人们常可获得宗教权力，有时候获得政治权力。

美洲的冶铁技术发展的非常晚，并且有限，而非洲则完全不同，他们的冶铁技术从相对较早的时期就开始发展；他们制造了精巧的高炉以产生冶铁所需要的高温，并能控制与碳和铁矿石接触的空气用量以满足冶铁的需要。大部分非洲人直接进入了铁器时代，他们吸取了冶铁的基本技术并使之与当地的条件和资源相适应。

农业和后来冶铁技术是伴随着那些已经掌握了新技术的人们的大迁徙而传播的。这些人可能来源于尼日尼亚东部。为了逃避撒哈拉沙漠的不断干旱，人们迁徙到尼日尼亚东部，使这里的人口增多，于是这里的人们也接着迁徙。他们所说是前班图语，也就是现在仍然为广泛的撒哈拉沙漠南部非洲人所使用的班图语的源头。这些人为什么扩散到非洲中部和南部？他们怎么迁徙的？仍然是迷。不过考古学家们相信他们的铁制武器足以让他们战胜那些靠采集打猎为生的敌人，因为这些人仍然利用石质工具。不过过程仍然无人知道，另外，和平的移民或者简单的人口增长，都可能导致班图的扩张。

The Rise of Teotihuacán

The city of Teotihuacán, which lay about 50 kilometers northeast of modern-day Mexico City, began its growth by 200-100 B.C. At its height, between about A.D. 150 and 700, it probably had a population of more than 125,000 people and covered at least 20 square kilometers. It had over 2,000 apartment complexes, a great market, a large number of industrial workshops, an administrative center, a number of massive religious edifices, and a regular grid pattern of streets and buildings. Clearly, much planning and central control were involved in the expansion and ordering of this great metropolis. Moreover, the city had economic and perhaps religious contacts with most parts of Mesoamerica (modern Central America and Mexico).

How did this tremendous development take place, and why did it happen in the Teotihuacán Valley? Among the main factors are Teotihuacán's geographic location on a natural trade route to the south and east of the Valley of Mexico, the obsidian resources in the Teotihuacán Valley itself, and the valley's potential for extensive irrigation. The exact role of other factors is much more difficult to pinpoint—for instance, Teotihuacán's religious significance as a shrine, the historical situation in and around the Valley of Mexico toward the end of the first millennium B.C., the ingenuity and foresightedness of Teotihuacán's elite, and, finally, the impact of natural disasters, such as the volcanic eruptions of the late first millennium B.C.

This last factor is at least circumstantially implicated in Teotihuacán's rise. Prior to 200 B.C., a number of relatively small centers coexisted in and near the Valley of Mexico. Around this time, the largest of these centers, Cuicuilco, was seriously affected by a volcanic eruption, with much of its agricultural land covered by lava. With Cuicuilco eliminated as a potential rival, any one of a number of relatively modest towns might have emerged as a leading economic and political power in Central Mexico. The archaeological evidence clearly indicates, though, that Teotihuacán was the center that did arise as the predominant force in the area by the first century A.D.

It seems likely that Teotihuacán's natural resources, along with the city elite's ability to recognize their potential, gave the city a competitive edge over its neighbors. The valley, like many other places in Mexican and Guatemalan highlands, was rich in obsidian. The hard volcanic stone was a resource that had been in great demand for many years, at least since the rise of the Olmecs (a people who flourished between 1200 and 400 B.C.), and it apparently had a secure market. Moreover, recent research on obsidian tools found at Olmec sites has shown that some of the obsidian obtained by the Olmecs originated near Teotihuacán. Teotihuacán obsidian must have been recognized as a valuable commodity for many centuries before the great city arose.

Long-distance trade in obsidian probably gave the elite residents of Teotihuacán access to a wide variety of exotic good, as well as a relatively prosperous life. Such success may have attracted immigrants to Teotihuacán. In addition, Teotihuacán's elite may have consciously attempted to attract new inhabitants. It is also probable that as early as 200 B.C. Teotihuacán may have achieved some religious significance and its shrine (or shrines) may have served as an additional population magnet. Finally, the growing population was probably fed by increasing the number and size of irrigated fields.

The picture of Teotihuacán that emerges is a classic picture of positive feedback among obsidian mining and working, trade, population growth, irrigation, and religious tourism. The thriving obsidian operation, for example, would necessitate more miners, additional manufacturers of obsidian tools, and additional traders to carry the

goods to new markets. All this led to increased wealth, which in turn would attract more immigrants to Teotihuacán. The growing power of the elite, who controlled the economy, would give them the means to physically coerce people to move to Teotihuacán and serve as additions to the labor force. More irrigation works would have to be built to feed the growing population, and this resulted in more power and wealth for the elite.

Paragraph 1: The city of Teotihuacán, which lay about 50 kilometers northeast of modern-day Mexico City, began its growth by 200-100 B.C. At its height, between about A.D. 150 and 700, it probably had a population of more than 125,000 people and covered at least 20 square kilometers. It had over 2,000 apartment complexes, a great market, a large number of industrial workshops, an administrative center, a number of massive religious edifices, and a regular grid pattern of streets and buildings. Clearly, much planning and central control were involved in the expansion and ordering of this great metropolis. Moreover, the city had economic and perhaps religious contacts with most parts of Mesoamerica (modern Central America and Mexico).

1. The word “massive” in the passage is closest in meaning to

- ancient
- carefully
- very large
- carefully protected

2. In paragraph 1, each of the following is mentioned as a feature of the city of Teotihuacán between A.D. 150 and 700 EXCEPT

- regularly arranged streets
- several administrative centers spread across the city
- many manufacturing workshops
- apartment complexes

Paragraph 2: How did this tremendous development take place, and why did it happen in the Teotihuacán Valley? Among the main factors are Teotihuacán’s geographic location on a natural trade route to the south and east of the Valley of Mexico, the obsidian resources in the Teotihuacán Valley itself, and the valley’s potential for extensive irrigation. The exact role of other factors is much more difficult to pinpoint—for instance, Teotihuacán’s religious significance as a shrine, the historical situation in and around the Valley of Mexico toward the end of the first millennium B.C., the ingenuity and foresightedness of Teotihuacán’s elite, and, finally, the impact of natural disasters, such as the volcanic eruptions of the late first millennium B.C.

3. The word “pinpoint” in the passage is closest in meaning to

- identify precisely
- make an argument for
- describe
- understand

4. The word “ingenuity” in the passage is closest in meaning to

- ambition
- sincerity
- faith
- cleverness

5. Which of the following is NOT mentioned in paragraph 2 as a main factor in the development of Teotihuacán?

-
- The presence of obsidian in the Teotihuacán Valley
 - The potential for extensive irrigation of Teotihuacán Valley lands
 - A long period of volcanic inactivity in the Teotihuacán Valley
 - Teotihuacán's location on a natural trade route

Paragraph 2: How did this tremendous development take place, and why did it happen in the Teotihuacán Valley? Among the main factors are Teotihuacán's geographic location on a natural trade route to the south and east of the Valley of Mexico, the obsidian resources in the Teotihuacán Valley itself, and the valley's potential for extensive irrigation. The exact role of other factors is much more difficult to pinpoint—for instance, Teotihuacán's religious significance as a shrine, the historical situation in and around the Valley of Mexico toward the end of the first millennium B.C., the ingenuity and foresightedness of Teotihuacán's elite, and, finally, the impact of natural disasters, such as the volcanic eruptions of the late first millennium B.C.

Paragraph 3: This last factor is at least circumstantially implicated in Teotihuacán's rise. Prior to 200 B.C., a number of relatively small centers coexisted in and near the Valley of Mexico. Around this time, the largest of these centers, Cuicuilco, was seriously affected by a volcanic eruption, with much of its agricultural land covered by lava. With Cuicuilco eliminated as a potential rival, any one of a number of relatively modest towns might have emerged as a leading economic and political power in Central Mexico. The archaeological evidence clearly indicates, though, that Teotihuacán was the center that did arise as the predominant force in the area by the first century A.D.

6. Which of the following can be inferred from paragraphs 2 and 3 about the Volcanic eruptions of the late first millennium B.C.?

- They were more frequent than historians once thought.
- They may have done more damage to Teotihuacán than to neighboring centers.
- They may have played a major role in the rise of Teotihuacán.
- They increased the need for extensive irrigation in the Teotihuacán Valley.

7. What can be inferred from paragraph 3 about Cuicuilco prior to 200 B.C.?

- It was a fairly small city until that date.
- It was located outside the Valley of Mexico.
- It emerged rapidly as an economical and political center.
- Its economy relied heavily on agriculture.

8. The word "predominant" in the passage is closest in meaning to

- most aggressive
- most productive
- principal
- earliest

Paragraph 4: It seems likely that Teotihuacán's natural resources, along with the city elite's ability to recognize their potential, gave the city a competitive edge over its neighbors. The valley, like many other places in Mexican and Guatemalan highlands, was rich in obsidian. The hard volcanic stone was a resource that had been in great demand for many years, at least since the rise of the Olmecs (a people who flourished between 1200 and 400 B.C.), and it apparently had a secure market. Moreover, recent research on obsidian tools found at Olmec sites has shown that some of the obsidian obtained by the Olmecs originated near Teotihuacán. Teotihuacán obsidian must have been recognized as a valuable commodity for many centuries before the great city arose.

9. Which of the following allowed Teotihuacán to have "a competitive edge over its neighbors"?

-
- A well-exploited and readily available commodity
 - The presence of a highly stable elite class
 - Knowledge derived directly from the Olmecs about the art of toolmaking
 - Scarce natural resources in nearby areas such as those located in what are now the Guatemalan and Mexican highlands

10. According to paragraph 4, what has recent research on obsidian tools found at Olmec sites shown?

- Obsidian's value was understood only when Teotihuacán became an important city.
- The residents of Teotihuacán were sophisticated toolmakers.
- The residents of Teotihuacán traded obsidian with the Olmecs as early as 400 B.C.
- Some of the obsidian used by the Olmecs came from the area around Teotihuacán.

Paragraph 5: Long-distance trade in obsidian probably gave the elite residents of Teotihuacán access to a wide variety of exotic goods, as well as a relatively prosperous life. Such success may have attracted immigrants to Teotihuacán. In addition, Teotihuacán's elite may have consciously attempted to attract new inhabitants. It is also probable that as early as 200 B.C. Teotihuacán may have achieved some religious significance and its shrine (or shrines) may have served as an additional population magnet. Finally, the growing population was probably fed by increasing the number and size of irrigated fields.

11. Select the TWO answer choices that are mentioned in paragraph 5 as being features of Teotihuacán that may have attracted immigrants to the city. To receive credit, you must select TWO answers.

- The prosperity of the elite
- Plenty of available housing
- Opportunities for well-paid agricultural employment
- The presence of one or more religious shrines

Paragraph 6: The picture of Teotihuacán that emerges is a classic picture of positive feedback among obsidian mining and working, trade, population growth, irrigation, and religious tourism. The thriving obsidian operation, for example, would necessitate more miners, additional manufacturers of obsidian tools, and additional traders to carry the goods to new markets. All this led to increased wealth, which in turn would attract more immigrants to Teotihuacán. The growing power of the elite, who controlled the economy, would give them the means to physically coerce people to move to Teotihuacán and serve as additions to the labor force. More irrigation works would have to be built to feed the growing population, and this resulted in more power and wealth for the elite.

12. In paragraph 6, the author discusses "The thriving obsidian operation" in order to

- explain why manufacturing was the main industry of Teotihuacán
- give an example of an industry that took very little time to develop in Teotihuacán
- Illustrate how several factors influenced each other to make Teotihuacán a powerful and wealthy city
- explain how a successful industry can be a source of wealth and a source of conflict at the same time

Paragraph 1: The city of Teotihuacán, which lay about 50 kilometers northeast of modern-day Mexico City, began its growth by 200-100 B.C. At its height, between about A.D. 150 and 700, it probably had a population of more than 125,000 people and covered at least 20 square kilometers. ■It had over 2,000 apartment complexes, a great market, a large number of industrial workshops, an administrative center, a number of massive religious edifices, and a regular grid pattern of streets and buildings. ■Clearly, much planning and central control were involved in the expansion and ordering of this great metropolis. ■Moreover, the city had economic and perhaps religious contacts with most parts of Mesoamerica (modern Central America and Mexico). ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

In fact, artifacts and pottery from Teotihuacán have been discovered in sites as far away as the Mayan lowlands, the Guatemalan highlands, northern Mexico, and the Gulf Coast of Mexico.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Teotihuacán was a highly developed city in Mesoamerica that reached its peak between about A.D. 150 and 700.

-
-
-

Answer choices

○The number and sophistication of the architectural, administrative, commercial, and religious features of Teotihuacan indicate the existence of centralized planning and control.

○Teotihuacán may have developed its own specific local religion as a result of the cultural advances made possible by the city's great prosperity.

○As a result of its large number of religious shrines, by the first century A.D., Teotihuacan become the most influential religious center in all of Mesoamerica.

○Several factors may account for Teotihuacán's extraordinary development, including its location, rich natural resources, irrigation potential, intelligent elite, and the misfortune of rival communities.

○In many important areas, from the obsidian industry to religious tourism, Teotihuacán's success and prosperity typified the classic positive feedback cycle.

○Although many immigrants settled in Teotihuacán between A.D.150 and 700, the increasing threat of coerced labor discouraged further settlement and limited Teotihuacán's population growth.

参考答案:

1. ○3
2. ○2
3. ○1
4. ○4
5. ○3
6. ○3
7. ○4
8. ○3
9. ○1
10. ○4
11. ○1, 4
12. ○3
13. ○4
14. The number and sophistication...
Several factors may account...
In many important areas...

特奥蒂瓦坎的崛起

起源于公元前 **200** 到 **100** 年前的特奥蒂瓦坎城位于现在的墨西哥城东北约 **50** 公里处。在鼎盛时期，也就是大约在公元 **150** 到 **700** 年间，它可能有超过 **12.5** 万的人口至少覆盖圆 **20** 平方公里。它拥有超过 **2,000** 座大厦、一座大型市场、大量的工业作坊、一个行政管理中心、数量庞大的宗教场所还有规则的街道建筑网络。显然，这座伟大的都市的管理和扩张时经过了精心的规划和集中管理的。甚至特奥蒂瓦坎城与中美洲的大部分都保持着经济和宗教的联系。

这惊人的发展是如何完成的呢，另外它为什么会发生在特奥蒂瓦坎峡谷呢？其中最主要的原因就是特奥蒂瓦坎地处联通墨西哥峡谷南部和东部的自然形成的通商线路中，特奥蒂瓦坎峡谷本身拥有的黑曜石资源，还有特奥蒂瓦坎峡谷大面积灌溉的潜能。而其他的因素的作用则很难表述清楚——例如，特奥蒂瓦坎作为宗教圣地的重要地位，在公元前一千年后期墨西哥峡谷及其周围地区的历史情况，特奥蒂瓦坎精英们的机智和深谋远虑，以及自然灾害的冲击，比如在公元前一千年后期的火山喷发。

这最后的因素至少偶然的暗示了特奥蒂瓦坎的崛起。在公元前 **200** 年以前，有很多相对较小的中心在墨西哥峡谷内部和周围和谐共存着。就在这时其中最大的中心，**Cuicuilco** 遭到火山爆发的严重影响，其大部分农田被岩浆覆盖了。随着 **Cuicuilco** 失去了竞争能力，其他任何一个中等的城镇都可能成为墨西哥中部新一代政治经济中心。考古资料明确的表明，特奥蒂瓦坎就是在公元一世纪时崛起的中心。

很可能是特奥蒂瓦坎的自然资源，和精英们重组它们的才能，给予这座城市以与其邻居们抗衡的力量。像墨西哥和危地马拉高地的其他地区一样，这个峡谷也富含黑曜岩。那坚硬的火成岩在很多年内都是需求量极大的资源，至少从奥尔达克人(一个在公元前 **1200** 到 **400** 年间繁荣过的名族)的崛起之后就是这样了，显然它有着一个稳定的市场。关于最近在奥尔达克遗址中发掘的黑曜岩工具的研究表明，奥尔达克所得到的部分黑曜石工具源自特奥蒂瓦坎地区。在这座伟大的城市崛起之前，特奥蒂瓦坎的黑曜岩工具一定已经作为极有价值的商品闻名数世纪了。

长距离的黑曜岩交易可能就使得特奥蒂瓦坎的精英们有机会得到外来的商品和繁荣的生活，这种成功可能会吸引移民到特奥蒂瓦坎。另外，特奥蒂瓦坎的贵族们也可能会有意的吸引新的移民。也有可能是早在公元前 **200** 年前，特奥蒂瓦坎的宗教就达到了一定的高度，所以其神殿就是另一种对移民的吸引力。最后，不断增加的人口可以通过扩大灌溉土地的面积和规模而得到给养。

那展现出来的特奥蒂瓦坎的生活图景是一种经典的在黑曜岩矿产和交易，人口的增长，灌溉的扩张，还有宗教旅游业之间的良性反馈。比如说，黑曜岩交易的发展将需要更多的矿工，更多的黑曜岩工具的制造商和更多的商人将工具运往新的市场。所有的这一切导致了财富的增加，而财富的增加反过来又会吸引更多的人移民到特奥蒂瓦坎。而那些掌控者经济命脉的社会精英们的力量的增长就会为他们提供了种种方法以迫使人们移往特奥蒂瓦坎以充当额外的劳动力。于是就不得不建成更多的灌溉工事以给养增长的人口，而这又会导致精英们力量和财富的增加。

Extinction of the Dinosaurs

Paleozoic Era 334 to 248 million years ago

Mesozoic Era 245 to 65 million years ago

—Triassic Period

—Jurassic Period

—Cretaceous Period

Cenozoic Era 65 million years ago to the present

Paleontologists have argued for a long time that the demise of the dinosaurs was caused by climatic alterations associated with slow changes in the positions of continents and seas resulting from plate tectonics. Off and on throughout the Cretaceous (the last period of the Mesozoic era, during which dinosaurs flourished), large shallow seas covered extensive areas of the continents. Data from diverse sources, including geochemical evidence preserved in seafloor sediments, indicate that the Late Cretaceous climate was milder than today's. The days were not too hot, nor the nights too cold. The summers were not too warm, nor the winters too frigid. The shallow seas on the continents probably buffered the temperature of the nearby air, keeping it relatively constant.

At the end of the Cretaceous, the geological record shows that these seaways retreated from the continents back into the major ocean basins. No one knows why. Over a period of about 100,000 years, while the seas pulled back, climates around the world became dramatically more extreme: warmer days, cooler nights; hotter summers, colder winters. Perhaps dinosaurs could not tolerate these extreme temperature changes and became extinct.

If true, though, why did cold-blooded animals such as snakes, lizards, turtles, and crocodiles survive the freezing winters and torrid summers? These animals are at the mercy of the climate to maintain a livable body temperature. It's hard to understand why they would not be affected, whereas dinosaurs were left too crippled to cope, especially if, as some scientists believe, dinosaurs were warm-blooded. Critics also point out that the shallow seaways had retreated from and advanced on the continents numerous times during the Mesozoic, so why did the dinosaurs survive the climatic changes associated with the earlier fluctuations but not with this one? Although initially appealing, the hypothesis of a simple climatic change related to sea levels is insufficient to explain all the data.

Dissatisfaction with conventional explanations for dinosaur extinctions led to a surprising observation that, in turn, has suggested a new hypothesis. Many plants and animals disappear abruptly from the fossil record as one moves from layers of rock documenting the end of the Cretaceous up into rocks representing the beginning of the Cenozoic (the era after the Mesozoic). Between the last layer of Cretaceous rock and the first layer of Cenozoic rock, there is often a thin layer of clay. Scientists felt that they could get an idea of how long the extinctions took by determining how long it took to deposit this one centimeter of clay and they thought they could determine the time it took to deposit the clay by determining the amount of the element iridium (Ir) it contained.

Ir has not been common at Earth's since the very beginning of the planet's history. Because it usually exists in a metallic state, it was preferentially incorporated in Earth's core as the planet cooled and consolidated. Ir is found in high concentrations in some meteorites, in which the solar system's original chemical composition is preserved. Even today, microscopic meteorites continually bombard Earth, falling on both land and sea. By measuring how many of these meteorites fall to Earth over a given period of time, scientists can estimate how long it might have taken to deposit the observed amount of Ir in the boundary clay. These calculations suggest that a period of about one million years would have been required. However, other reliable evidence suggests that

the deposition of the boundary clay could not have taken one million years. So the unusually high concentration of Ir seems to require a special explanation.

In view of these facts, scientists hypothesized that a single large asteroid, about 10 to 15 kilometers across, collided with Earth, and the resulting fallout created the boundary clay. Their calculations show that the impact kicked up a dust cloud that cut off sunlight for several months, inhibiting photosynthesis in plants; decreased surface temperatures on continents to below freezing; caused extreme episodes of acid rain; and significantly raised long-term global temperatures through the greenhouse effect. This disruption of food chain and climate would have eradicated the dinosaurs and other organisms in less than fifty years.

Paragraph 1: Paleontologists have argued for a long time that the demise of the dinosaurs was caused by climatic alterations associated with slow changes in the positions of continents and seas resulting from plate tectonics. Off and on throughout the Cretaceous (the last period of the Mesozoic era, during which dinosaurs flourished), large shallow seas covered extensive areas of the continents. Data from diverse sources, including geochemical evidence preserved in seafloor sediments, indicate that the Late Cretaceous climate was milder than today's. The days were not too hot, nor the nights too cold. The summers were not too warm, nor the winters too frigid. The shallow seas on the continents probably buffered the temperature of the nearby air, keeping it relatively constant.

1. According to paragraph 1, which of the following is true of the Late Cretaceous climate?

- Summers were very warm and winters were very cold.
- Shallow seas on the continents caused frequent temperature changes.
- The climate was very similar to today's climate.
- The climate did not change dramatically from season to season.

Paragraph 2: At the end of the Cretaceous, the geological record shows that these seaways retreated from the continents back into the major ocean basins. No one knows why. Over a period of about 100,000 years, while the seas pulled back, climates around the world became dramatically more extreme: warmer days, cooler nights; hotter summers, colder winters. Perhaps dinosaurs could not tolerate these extreme temperature changes and became extinct.

2. Which of the following reasons is suggested in paragraph 2 for the extinction of the dinosaurs?

- Changes in the lengths of the days and nights during the late Cretaceous period
- Droughts caused by the movement of seaways back into the oceans
- The change from mild to severe climates during the Late Cretaceous period
- An extreme decrease in the average yearly temperature over 10,000 years

Paragraph 3: If true, though, why did cold-blooded animals such as snakes, lizards, turtles, and crocodiles survive the freezing winters and torrid summers? These animals are at the mercy of the climate to maintain a livable body temperature. It's hard to understand why they would not be affected, whereas dinosaurs were left too crippled to cope, especially if, as some scientists believe, dinosaurs were warm-blooded. Critics also point out that the shallow seaways had retreated from and advanced on the continents numerous times during the Mesozoic, so why did the dinosaurs survive the climatic changes associated with the earlier fluctuations but not with this one? Although initially appealing, the hypothesis of a simple climatic change related to sea levels is insufficient to explain all the data.

3. Why does the author mention the survival of "snakes, lizards, turtles, and crocodiles" in paragraph 3?

-
- To argue that dinosaurs may have become extinct because they were not cold-blooded animals
 - To question the adequacy of the hypothesis that climatic change related to sea levels caused the extinction of the dinosaurs
 - To present examples of animals that could maintain a livable body temperature more easily than dinosaurs
 - To support a hypothesis that these animals were not as sensitive to climate changes in the Cretaceous period as they are today

4. The word “cope” in the passage is closest in meaning to

- adapt
- move
- continue
- compete

5. According to paragraph 3, which of the following is true of changes in climate before the Cretaceous period and the effect of these changes on dinosaurs?

- Climate changes associated with the movement of seaways before the Cretaceous period did not cause dinosaurs to become extinct.
- Changes in climate before the Cretaceous period caused severe fluctuations in sea level, resulting in the extinction of the dinosaurs.
- Frequent changes in climate before the Cretaceous period made dinosaurs better able to maintain a livable body temperature.
- Before the Cretaceous period there were few changes in climate, and dinosaurs flourished.

6. The word “fluctuations” in the passage is closest in meaning to

- extremes
- retreats
- periods
- variations

Paragraph 4: Dissatisfaction with conventional explanations for dinosaur extinctions led to a surprising observation that, in turn, has suggested a new hypothesis. Many plants and animals disappear abruptly from the fossil record as one moves from layers of rock documenting the end of the Cretaceous up into rocks representing the beginning of the Cenozoic (the era after the Mesozoic). Between the last layer of Cretaceous rock and the first layer of Cenozoic rock, there is often a thin layer of clay. Scientists felt that they could get an idea of how long the extinctions took by determining how long it took to deposit this one centimeter of clay and they thought they could determine the time it took to deposit the clay by determining the amount of the element iridium (Ir) it contained.

7. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? In correct choices change the meaning in important ways or leave out essential information.

- The fossil record suggests that there was an abrupt extinction of many plants and animals at the end of the Mesozoic era.
- Few fossils of the Mesozoic era have survived in the rocks that mark the end of the Cretaceous.
- Fossils from the Cretaceous period of the Mesozoic up to the beginning of the Cenozoic era have been removed from the layers of rock that surrounded them.
- Plants and animals from the Mesozoic era were unable to survive in the Cenozoic era.

Paragraph 4: Dissatisfaction with conventional explanations for dinosaur extinctions led to a surprising observation that, in turn, has suggested a new hypothesis. Many plants and animals disappear abruptly from the fossil record as one moves from layers of rock documenting the end of the Cretaceous up into rocks representing the beginning of the Cenozoic (the era after the Mesozoic). Between the last layer of Cretaceous rock and the first layer of Cenozoic rock, there is often a thin layer of clay. Scientists felt that they could get an idea of how long the extinctions took by determining how long it took to deposit this one centimeter of clay and they thought they could determine the time it took to deposit the clay by determining the amount of the element iridium (Ir) it contained.

8. In paragraph 4, all the following questions are answered EXCEPT:

- Why is there a layer of clay between the rocks of the Cretaceous and Cenozoic?
- Why were scientists interested in determining how long it took to deposit the layer of clay at the end of the Cretaceous?
- What was the effect of the surprising observation scientists made?
- Why did scientists want more information about the dinosaur extinctions at the end of the Cretaceous?

Paragraph 5: Ir has not been common at Earth's since the very beginning of the planet's history. Because it usually exists in a metallic state, it was preferentially incorporated in Earth's core as the planet cooled and consolidated. Ir is found in high concentrations in some meteorites, in which the solar system's original chemical composition is preserved. Even today, microscopic meteorites continually **bombard** Earth, falling on both land and sea. By measuring how many of these meteorites fall to Earth over a given period of time, scientists can estimate how long it might have taken to deposit the observed amount of Ir in the boundary clay. These calculations suggest that a period of about one million years would have been required. However, other reliable evidence suggests that the deposition of the boundary clay could not have taken one million years. So the unusually high concentration of Ir seems to require a special explanation.

9. The word "**bombard**" in the passage is closest in meaning to

- approach
- strike
- pass
- circle

10. Paragraph 5 implies that a special explanation of Ir in the boundary clay is needed because

- the Ir in microscopic meteorites reaching Earth during the Cretaceous period would have been incorporated into Earth's core
- the Ir in the boundary clay was deposited much more than a million years ago
- the concentration of Ir in the boundary clay is higher than in microscopic meteorites
- the amount of Ir in the boundary clay is too great to have come from microscopic meteorites during the time the boundary clay was deposited

Paragraph 6: In view of these facts, scientists hypothesized that a single large asteroid, about 10 to 15 kilometers across, collided with Earth, and the resulting fallout created the boundary clay. Their calculations show that the impact kicked up a dust cloud that cut off sunlight for several months, inhibiting photosynthesis in plants; decreased surface temperatures on continents to below freezing; caused extreme episodes of acid rain; and significantly raised long-term global temperatures through the greenhouse effect. This **disruption** of food chain and climate would have eradicated the dinosaurs and other organisms in less than fifty years.

11. The word "**disruption**" in the passage is closest in meaning to

-
- exhaustion
 - disturbance
 - modification
 - disappearance

12. Paragraph 6 mentions all of the following effects of the hypothesized asteroid collision EXCEPT

- a large dust cloud that blocked sunlight
- an immediate drop in the surface temperatures of the continents
- an extreme decrease in rainfall on the continents
- a long-term increase in global temperatures

Paragraph 5: Ir has not been common at Earth's since the very beginning of the planet's history. Because it usually exists in a metallic state, it was preferentially incorporated in Earth's core as the planet cooled and consolidated. Ir is found in high concentrations in some meteorites, in which the solar system's original chemical composition is preserved. Even today, microscopic meteorites continually bombard Earth, falling on both land and sea. By measuring how many of these meteorites fall to Earth over a given period of time, scientists can estimate how long it might have taken to deposit the observed amount of Ir in the boundary clay. ■ These calculations suggest that a period of about one million years would have been required. ■ However, other reliable evidence suggests that the deposition of the boundary clay could not have taken one million years. ■ So the unusually high concentration of Ir seems to require a special explanation. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Consequently, the idea that the Ir in the boundary clay came from microscopic meteorites cannot be accepted.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

For a long time scientists have argued that the extinction of the dinosaurs was related to climate change.

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-
-

Answer choices

- A simple climate change does not explain some important data related to the extinction of the dinosaurs at the end of the Cretaceous.
- The retreat of the seaways at the end of the Cretaceous has not been fully explained.
- The abruptness of extinctions at the end of the Cretaceous and the high concentration of Ir found in clay deposited at that time have fueled the development of a new hypothesis.
- Extreme changes in daily and seasonal climates preceded the retreat of the seas back into the major ocean basins.
- Some scientists hypothesize that the extinction of the dinosaurs resulted from the effects of an asteroid collision with Earth.
- Boundary clay layers like the one between the Mesozoic and Cenozoic are used by scientists to determine the rate at which an extinct species declined.

参考答案:

1. ○4
2. ○3
3. ○2
4. ○1
5. ○1
6. ○4
7. ○1
- 8.○1
9. ○2
10. ○4
11. ○2
12. ○3
13. ○3
14. A simple climate change...
The abruptness of extinctions...
Some scientists hypothesize...

恐龙的灭绝

很长时间以来，古生物学家们认为恐龙的灭亡是与因地质构造而引起的海洋和大陆位置变迁相关的气候变化所致。在整个白垩纪（中生代的最后的一段时间，这时恐龙正值繁盛），广阔的浅海覆盖了大量的陆地。各方面的数据，包括海床沉积中的地理化学证据，都表明白垩纪后期的气候比现在的气候要温和得多。白天不是很热，夜间也不是很寒冷。夏天不是太炎热，而冬天也不是太寒冷。大陆上的浅海可能使其附近的空气少受影响，以保持相对稳定的温度。

在白垩纪后期，地质资料表明这些浅海都从大陆退回到主要的海洋盆地内了，没有人明白为什么。大约在**100000**年内，海洋收缩了，世界的气候也随之变得更极端：白天更热，夜间更冷，夏天更热，冬天更冷。恐龙或许就是因为无法忍受这种严峻的气温变化因而灭绝。

如果真是这样，那么为什么冷血动物，比如蛇类、蜥蜴、乌龟和鳄鱼却能够幸免于寒冬和酷夏呢？这些动物都是依赖于气温以使其身体保持适合生存的温度。很难理解它们为什么毫不受影响，然而恐龙却如此的无能以至于无法适应，尤其是有些科学家认为恐龙是热血动物。批评者们也指出浅海在中生代曾有过无数次的进入大陆而又退回盆地的过程，所以为什么恐龙在前面的海洋起伏中能幸免于难，而在这一次中却不能呢？尽管最初人们这样认为，但是简单的与海平面高度有关的气候变化假设是不足以解释所有数据的。

对传统的关于恐龙灭绝解释的不满使得人们反过来惊奇的发现了新的理论。当人们对比白垩纪后期的岩层资料和新生代（中生代后面的一个时期）早期的资料时发现很多植物和动物都突然的消失了。在白垩纪最后的一层岩石和新生代的第一层岩石之间，常有一层很薄的粘土。科学家们感觉到他们可以通过确定这层一厘米厚的粘土层中元素铈的含量来推测其的沉积时间，进而推测大灭绝所用的时间。

自从地球的形成以来，铈元素在地球的表面上就不常见。因为它通常是以金属状态存在，并随着地球的冷却和固结而优先的合并到地核中了。在一些陨石中，依可能会高度富集，而这里常保存着太阳系内原始的化学组成。直到今天，小型的陨石也在连续不断的撞击地球，并掉落在陆地和海洋中。通过确定在一段给定时间内掉落在地球上的这种陨石的数量，科学家们就可以确定沉积隔层粘土的形成时间。这种计算表明形成这种沉积可能需要一百万年。然而其他可靠的证据则表明沉积这层粘土可能不需要一百万年。所以这种不正常的铈的富集可能需要一种特殊的解释。

考虑到这些事实，科学家们就假设有一个较大的小行星，直径差不多有**10**到**15**公里，曾与地球相撞，所以碰撞扬起的灰尘等就形成了这层粘土层。他们的计算表明撞击扬起的灰尘遮挡了阳光达几个月之久，阻止了植物的光合作用，将陆地上的气温降到了零点之下，导致酸雨，通过温室效应造成了长期的、严重的全球升温。这种对食物链和气候的极大扰乱将可使恐龙和其他生物在不到**50**年的时间内绝迹。

Running Water on Mars?

Photographic evidence suggests that liquid water once existed in great quantity on the surface of Mars. Two types of flow features are seen: runoff channels and outflow channels. Runoff channels are found in the southern highlands. These flow features are extensive systems—sometimes hundreds of kilometers in total length—of interconnecting, twisting channels that seem to merge into larger, wider channels. They bear a strong resemblance to river systems on Earth, and geologists think that they are dried-up beds of long-gone rivers that once carried rainfall on Mars from the mountains down into the valleys. Runoff channels on Mars speak of a time 4 billion years ago (the age of the Martian highlands), when the atmosphere was thicker, the surface warmer, and liquid water widespread.

Outflow channels are probably relics of catastrophic flooding on Mars long ago. They appear only in equatorial regions and generally do not form extensive interconnected networks. Instead, they are probably the paths taken by huge volumes of water draining from the southern highlands into the northern plains. The onrushing water arising from these flash floods likely also formed the odd teardrop-shaped “islands” (resembling the miniature versions seen in the wet sand of our beaches at low tide) that have been found on the plains close to the ends of the outflow channels. Judging from the width and depth of the channels, the flow rates must have been truly enormous—perhaps as much as a hundred times greater than the 105 tons per second carried by the great Amazon river. Flooding shaped the outflow channels approximately 3 billion years ago, about the same times as the northern volcanic plains formed.

Some scientists speculate that Mars may have enjoyed an extended early Period during which rivers, lakes, and perhaps even oceans adorned its surface. A 2003 Mars Global Surveyor image shows what mission specialists think may be a delta—a fan-shaped network of channels and sediments where a river once flowed into a larger body of water, in this case a lake filling a crater in the southern highlands. Other researchers go even further, suggesting that the data provide evidence for large open expanses of water on the early Martian surface. A computer-generated view of the Martian north polar region shows the extent of what may have been an ancient ocean covering much of the northern lowlands. The Hellas Basin, which measures some 3,000 kilometers across and has a floor that lies nearly 9 kilometers below the basin’s rim, is another candidate for an ancient Martian sea.

These ideas remain controversial. Proponents point to features such as the terraced “beaches” shown in one image, which could conceivably have been left behind as a lake or ocean evaporated and the shoreline receded. But detractors maintain that the terraces could also have been created by geological activity, perhaps related to the geologic forces that depressed the Northern Hemisphere far below the level of the south, in which case they have nothing whatever to do with Martian water. Furthermore, Mars Global Surveyor data released in 2003 seem to indicate that the Martian surface contains too few carbonate rock layers—layers containing compounds of carbon and oxygen—that should have been formed in abundance in an ancient ocean. Their absence supports the picture of a cold, dry Mars that never experienced the extended mild period required to form lakes and oceans. However, more recent data imply that at least some parts of the planet did in fact experience long periods in the past during which liquid water existed on the surface.

Aside from some small-scale gullies (channels) found since 2000, which are inconclusive, astronomers have no direct evidence for liquid water anywhere on the surface of Mars today, and the amount of water vapor in the Martian atmosphere is tiny. Yet even setting aside the unproven hints of ancient oceans, the extent of the outflow channels suggests that a huge total volume of water existed on Mars in the past. Where did all the water go? The

answer may be that virtually all the water on Mars is now locked in the permafrost layer under the surface, with more contained in the planet's polar caps.

Paragraph 1: Photographic evidence suggests that liquid water once existed in great quantity on the surface of Mars. Two types of flow features are seen: runoff channels and outflow channels. Runoff channels are found in the southern highlands. These flow features are extensive systems—sometimes hundreds of kilometers in total length—of interconnecting, twisting channels that seem to merge into larger, wider channels. They bear a strong resemblance to river systems on Earth, and geologists think that they are dried-up beds of long-gone rivers that once carried rainfall on Mars from the mountains down into the valleys. Runoff channels on Mars speak of a time 4 billion years ago (the age of the Martian highlands), when the atmosphere was thicker, the surface warmer, and liquid water widespread.

1. The word “merge” in the passage is closest in meaning to

- expand
- separate
- straighten out
- combine

2. What does the discussion in paragraph 1 of runoff channels in the southern highlands suggest about Mars?

- The atmosphere of Mars was once thinner than it is today.
- Large amounts of rain once fell on parts of Mars.
- The river systems of Mars were once more extensive than Earth's.
- The rivers of Mars began to dry up about 4 billion years ago.

Paragraph 2: Outflow channels are probably relics of catastrophic flooding on Mars long ago. They appear only in equatorial regions and generally do not form extensive interconnected networks. Instead, they are probably the paths taken by huge volumes of water draining from the southern highlands into the northern plains. The onrushing water arising from these flash floods likely also formed the odd teardrop-shaped “islands” (resembling the miniature versions seen in the wet sand of our beaches at low tide) that have been found on the plains close to the ends of the outflow channels. Judging from the width and depth of the channels, the flow rates must have been truly enormous—perhaps as much as a hundred times greater than the 105 tons per second carried by the great Amazon river. Flooding shaped the outflow channels approximately 3 billion years ago, about the same times as the northern volcanic plains formed.

3. The word “relics” in the passage is closest in meaning to

- remains
- sites
- requirements
- sources

4. The word “miniature” in the passage is closest in meaning to

- temporary
- small
- multiple
- familiar

5. In paragraph 2, why does the author include the information that 105 tons of water flow through the

Amazon river per second?

- To emphasize the great size of the volume of water that seems to have flowed through Mars' outflow channels
- To indicate data used by scientists to estimate how long ago Mars' outflow channels were formed
- To argue that flash floods on Mars may have been powerful enough to cause tear-shaped "islands" to form
- To argue that the force of flood waters on Mars was powerful enough to shape the northern volcanic plains

6. According to paragraph 2, all of the following are true of the outflow channels on Mars EXCEPT:

- They formed at around the same time that volcanic activity was occurring on the northern plains.
- They are found only on certain parts of the Martian surface.
- They sometimes empty onto what appear to have once been the wet sands of tidal beaches.
- They are thought to have carried water northward from the equatorial regions.

Paragraph 3: Some scientists speculate that Mars may have enjoyed an extended early Period during which rivers, lakes, and perhaps even oceans adorned its surface. A 2003 Mars Global Surveyor image shows what mission specialists think may be a delta—a fan-shaped network of channels and sediments where a river once flowed into a larger body of water, in this case a lake filling a crater in the southern highlands. Other researchers go even further, suggesting that the data provide evidence for large open expanses of water on the early Martian surface. A computer-generated view of the Martian north polar region shows the extent of what may have been an ancient ocean covering much of the northern lowlands. The Hellas Basin, which measures some 3,000 kilometers across and has a floor that lies nearly 9 kilometers below the basin's rim, is another candidate for an ancient Martian sea.

7. All of the following questions about geological features on Mars are answered in paragraph 3 EXCEPT:

- What are some regions of Mars that may have once been covered with an ocean?
- Where do mission scientists believe that the river forming the delta emptied?
- Approximately how many craters on Mars do mission scientists believe may once have been lakes filled with water?
- During what period of Mars' history do some scientists think it may have had large bodies of water?

8. According to paragraph 3, images of Mars' surface have been interpreted as support for the idea that

- the polar regions of Mars were once more extensive than they are now
- a large part of the northern lowlands may once have been under water
- deltas were once a common feature of the Martian landscape
- the shape of the Hellas Basin has changed considerably over time

Paragraph 4: These ideas remain controversial. Proponents point to features such as the terraced "beaches" shown in one image, which could conceivably have been left behind as a lake or ocean evaporated and the shoreline receded. But detractors maintain that the terraces could also have been created by geological activity, perhaps related to the geologic forces that depressed the Northern Hemisphere far below the level of the south, in which case they have nothing whatever to do with Martian water. Furthermore, Mars Global Surveyor data released in 2003 seem to indicate that the Martian surface contains too few carbonate rock layers—layers containing compounds of carbon and oxygen—that should have been formed in abundance in an ancient ocean. Their absence supports the picture of a cold, dry Mars that never experienced the extended mild period required to form lakes and oceans. However, more recent data imply that at least some parts of the planet did in fact experience long periods in the past during which liquid water existed on the surface.

9. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- But detractors argue that geological activity may be responsible for the water associated with the terraces.
- But detractors argue that the terraces may have been formed by geological activity rather than by the presence of water.
- But detractors argue that the terraces may be related to geological forces in the Northern Hemisphere of Mars, rather than to Martian water in the south.
- But detractors argue that geological forces depressed the Northern Hemisphere so far below the level of the south that the terraces could not have been formed by water.

10. According to paragraph 4, what do the 2003 Global Surveyor data suggest about Mars?

- Ancient oceans on Mars contained only small amounts of carbon.
- The climate of Mars may not have been suitable for the formation of large bodies of water.
- Liquid water may have existed on some parts of Mars' surface for long periods of time.
- The ancient oceans that formed on Mars dried up during periods of cold, dry weather.

Paragraph 5: Aside from some small-scale gullies (channels) found since 2000, which are inconclusive, astronomers have no direct evidence for liquid water anywhere on the surface of Mars today, and the amount of water vapor in the Martian atmosphere is tiny. Yet even setting aside the unproven hints of ancient oceans, the extent of the outflow channels suggests that a huge total volume of water existed on Mars in the past. Where did all the water go? The answer may be that virtually all the water on Mars is now locked in the permafrost layer under the surface, with more contained in the planet's polar caps.

11. The word "hints" in the passage is closest in meaning to

- clues
- features
- arguments
- effects

Paragraph 2: Outflow channels are probably relics of catastrophic flooding on Mars long ago. ■ They appear only in equatorial regions and generally do not form extensive interconnected networks. ■ Instead, they are probably the paths taken by huge volumes of water draining from the southern highlands into the northern plains. ■ The onrushing water arising from these flash floods likely also formed the odd teardrop-shaped "islands" (resembling the miniature versions seen in the wet sand of our beaches at low tide) that have been found on the plains close to the ends of the outflow channels. ■ Judging from the width and depth of the channels, the flow rates must have been truly enormous—perhaps as much as a hundred times greater than the 105 tons per second carried by the great Amazon river. Flooding shaped the outflow channels approximately 3 billion years ago, about the same times as the northern volcanic plains formed.

12. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

These landscape features differ from runoff channels in a number of ways.

Where would the sentence best fit?

13. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

There is much debate concerning whether Mars once had water.

-
- -
 -

Answer choices

○Mars' runoff and outflow channels are large-scale, distinctive features that suggest that large quantities of liquid water once flowed on Mars.

○Although some researchers claim that Mars may once have had oceans, others dispute this, pointing to an absence of evidence or offering alternative interpretations of evidence.

○Various types of images have been used to demonstrate that most of Martian surface contains evidence of flowing water.

○The runoff and outflow channels of Mars apparently carried a higher volume of water and formed more extensive networks than do Earth's river systems.

○There is very little evidence of liquid water on Mars today, and it is assumed that all the water that once existed on the planet is frozen beneath its surface.

○While numerous gullies have been discovered on Mars since 2000, many astronomers dismiss them as evidence that Mars once had liquid water.

参考答案:

1. ○4
2. ○2
3. ○1
4. ○2
5. ○1
6. ○3
7. ○3
8. ○2
9. ○2
10. ○2
11. ○1
12. ○1
13. Mars' runoff and outflow channels...
Although some researchers claim...
There is very little evidence of...

火星上的流水

来自照片的证据显示在火星的表面曾有过大量的液态水。两种流动形式已经被发现：径流通道和外流通道。径流通道发现于南部的高地。这些流动形式有着庞大的系统——有时竟有数百千米长——他们相互交错，扭转，并可能汇入更大更宽的通道中。它们和地球上的河流系统非常相似，地质学家们认为它们是以前曾将火星上的雨水从高山携带到峡谷中的那些河流干涸后的遗迹。火星上的径流通道存在于 4 百万年以前（就是火星高地的年龄），那时候火星的大气层更厚，地表更暖和，并且液态水分布很广。

外流通道可能是很久以前火星上洪灾的遗迹。它们只形成于赤道附近，并一般没有形成广泛的交错的网络。相反，它们可能是携带大量水从南部高地到北部平原的排水系统。由泛滥的洪水而产生的激流可能也形成奇怪的泪滴状小岛（就像是在低潮时湿沙地或海滩上看到的缩小版本一样），已经在靠近出流通道末尾处的平原上被看到。从这些通道的宽度和深度可判断，当时流速一定很大——有可能是亚马逊河的每秒钟 105 吨的流量的一百多倍。大约在三百万年以前，北部火山平原形成的同时，洪水改变了外流通道的形状。

一些科学家认为早期的火星上广泛存在着河流，湖泊甚至是海洋。一份 2003 年的对火星全球的调查照片显示了一个科学家们认为是三角洲的构造——一个扇形的沉积物和水流通道的网络，河流可能是从这里流入了一个更大的水体；在这种情况下，它可能是南部高地的一个火山口湖泊。其他研究者做了更大胆的猜测，他们认为那些数据表明早期在火星表面存在大量的水。一张关于火星北部极地地区的电脑图片说明有可能有一个古老的海洋覆盖了大部分北部的低洼处。那座有大约 3000 公里宽，9 公里深的 Hellas 盆地也可能是火星海洋。

这些观点仍然有争议。支持者们指出照片里显示的台地“海滩”可以是由湖泊或者海洋蒸发干涸之后或者海退之后形成的。但是反对者认为这些台地也可能是由于地质活动造成的，即由于北半球的地质压力要远比南半球的小得多而造成的，在这种情况下，他们就和火星水系没有任何关系。而且，2003 发布的火星全球调查数据也表明火星表面含有太少的碳化岩层——含有碳氧化合物的岩层——他们应该是在古代海洋中大量形成的。这些岩层的缺失支持了火星是一个又冷又干燥的星球这一说法，并且不可能拥有形成湖泊和海洋的温和气候。然而，更多的数据现在表明至少该星球上的一些部分表面的确在过去的很长时间内存在液态水。

除了在 2000 年发现了一些小规模、不确定的溪谷以外，宇航员到目前为止还没有在星球的什么地方找到液态水存在的直接证据。而且火星大气中的水蒸气的含量也是微乎其微的。然而就算不考虑尚未证明的古代海洋存在的观点，出流通道的广泛存在就足以证明在火星上曾有大量的水体，水都去了哪里呢？答案可能是火星上所有的水实际上现在已经封存在其地下的永久冻层中，并且在极地地区最多。

TPO-9

Colonizing the Americas via the Northwest Coast

It has long been accepted that the Americas were by a migration of peoples from Asia, slowly traveling land bridge called Beringia (now the Bering Strait between northeastern Asia and Alaska) during the last Ice Age. The water craft theory about this migration was that around 11,000-12,000 years ago there was an ice-free corridor stretching from eastern Beringia to the areas of North south of the great northern glaciers. It was this midcontinental corridor between two massive ice sheets—the Laurentide to the east and the Cordilleran to the west—that enabled the southward migration. But belief in ice-free corridor began to crumble when paleoecologist MacDonald demonstrated that some of the most important radiocarbon dates used to support the existence ice-free corridor were incorrect. He persuasively argued that such an ice-free corridor did not exist until much later, when the continental ice began its final retreat.



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Support is growing for the alternative theory that people using watercraft, possibly skin boats, moved southward from Beringia along the Gulf of Alaska and then southward along the Northwest coast of North America possibly as early as 16,000 years ago. This route would have enabled humans to enter southern areas of the Americas prior to the melting of the continental glaciers. Until the early 1970s, most archaeologists did not consider the coast a possible migration route into the Americas because geologists originally believed that during the last Ice Age the entire Northwest Coast was covered by glacial ice. It had been assumed that the ice extended westward from the Alaskan/Canadian mountains to the very edge of the continental shelf, the flat, submerged part of the continent that extends into the ocean. This would have created a barrier of ice extending from the Alaska Peninsula, through the Gulf of Alaska and southward along the Northwest Coast of north America to what is today the state of Washington.

The most influential proponent of the coastal migration route has been Canadian archaeologist Knut Fladmark. He theorized that with the use of watercraft, people gradually colonized unglaciated refuges and areas along the continental shelf exposed by the lower sea level. Fladmark's hypothesis received additional support form from the fact that the greatest diversity in native American languages occurs along the west coast of the Americas, suggesting that this region has been settled the longest.

More recent geologic studies documented deglaciation and the existence of ice-free areas throughout major coastal areas of British Columbia, Canada, by 13,000 years ago. Research now indicates that sizable areas of southeastern Alaska along the inner continental shelf were not covered by ice toward the end of the last Ice Age. One study suggests that except for a 250-mile coastal area between southwestern British Columbia and Washington State, the Northwest Coast of North America was largely free of ice by approximately 16,000 years ago. Vast areas along the coast may have been deglaciated beginning around 16,000 years ago, possibly providing a coastal corridor for the movement of plants, animals, and humans sometime between 13,000 and 14,000 years

ago.

The coastal hypothesis has gained increasing support in recent years because the remains of large land animals, such as caribou and brown bears, have been found in southeastern Alaska dating between 10,000 and 12,500 years ago. This is the time period in which most scientists formerly believed the area to be inhospitable for humans. It has been suggested that if the environment were capable of supporting breeding populations of bears, there would have been enough food resources to support humans. Fladmark and others believe that the first human colonization of America occurred by boat along the Northwest Coast during the very late Ice Age, possibly as early as 14,000 years ago. The most recent geologic evidence indicates that it may have been possible for people to colonize ice-free regions along the continental shelf that were still exposed by the lower sea level between 13,000 and 14,000 years ago.

The coastal hypothesis suggests an economy based on marine mammal hunting, saltwater fishing, shellfish gathering, and the use of watercraft. Because of the barrier of ice to the east, the Pacific Ocean to the west, and populated areas to the north, there may have been a greater impetus for people to move in a southerly direction.

Paragraph 1: It has long been accepted that the Americas were colonized by a migration of peoples from Asia, slowly traveling across a land bridge called Beringia (now the Bering Strait between northeastern Asia and Alaska) during the last Ice Age. The first water craft theory about this migration was that around 11,000-12,000 years ago there was an ice-free corridor stretching from eastern Beringia to the areas of North America south of the great northern glaciers. It was this midcontinental corridor between two massive ice sheets—the Laurentide to the east and the Cordilleran to the west—that enabled the southward migration. But belief in this ice-free corridor began to crumble when paleoecologist Glen MacDonald demonstrated that some of the most important radiocarbon dates used to support the existence of an ice-free corridor were incorrect. He **persuasively** argued that such an ice-free corridor did not exist until much later, when the continental ice began its final retreat.

1. According to paragraph 1, the theory that people first migrated to the Americas by way of an ice-free corridor was seriously called into question by

- paleoecologist Glen MacDonald's argument that the original migration occurred much later than had previously been believed
- the demonstration that certain previously accepted radiocarbon dates were incorrect
- evidence that the continental ice began its final retreat much later than had previously been believed
- research showing that the ice-free corridor was not as long lasting as had been widely assumed

2. The word "**persuasively**" in the passage is closest in meaning to

- aggressively
- inflexibly
- convincingly
- carefully

Paragraph 2: Support is growing for the alternative theory that people using watercraft, possibly skin boats, moved southward from Beringia along the Gulf of Alaska and then southward along the Northwest coast of North America possibly as early as 16,000 years ago. This route would have enabled humans to enter southern areas of the Americas **prior to** the melting of the continental glaciers. Until the early 1970s, most archaeologists did not consider the coast a possible migration route into the Americas because geologists originally believed that during the last Ice Age the entire Northwest Coast was covered by glacial ice. It had been assumed that the ice extended westward from the Alaskan/Canadian mountains to the very edge of the continental shelf, the flat, submerged part of the continent that extends into the ocean. This would have created a barrier of ice extending from the

Alaska Peninsula, through the Gulf of Alaska and southward along the Northwest Coast of north America to what is today the state of Washington.

3. Paragraph 2 begins by presenting a theory and then goes on to

- discuss why the theory was rapidly accepted but then rejected
- present the evidence on which the theory was based
- cite evidence that now shows that the theory is incorrect
- explain why the theory was not initially considered plausible

4. The phrase “prior to” is closest in meaning to

- before
- immediately after
- during
- in spite of

5. Paragraph 2 supports the idea that, before the 1970s, most archaeologists held which of the following views about the earliest people to reach the Americas?

- They could not have sailed directly from Beringia to Alaska and then southward because, it was thought, glacial ice covered the entire coastal region.
- They were not aware that the climate would continue to become milder.
- They would have had no interest in migrating southward from Beringia until after the continental glaciers had begun to melt.
- They lacked the navigational skills and appropriate boats needed long-distance trips.

Paragraph 3: The most influential proponent of the coastal migration route has been Canadian archaeologist Knut Fladmark. He theorized that with the use of watercraft, people gradually colonized unglaciated refuges and areas along the continental shelf exposed by the lower sea level. Fladmark’s hypothesis received additional support form from the fact that the greatest diversity in native American languages occurs along the west coast of the Americas, suggesting that this region has been settled the longest.

6. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways to leave out essential information.

- Because this region has been settled the longest, it also displays the greatest diversity in Native American languages.
- Fladmark’s hypothesis states that the west coast of the Americas has been settled longer than any other region.
- The fact that the greatest diversity of Native American languages occurs along the west coast of the Americans lends strength to Fladmark’s hypothesis.
- According to Fladmark, Native American languages have survived the longest along the west coast of the Americas.

Paragraph 4: More recent geologic studies documented deglaciation and the existence of ice-free areas throughout major coastal areas of British Columbia, Canada, by 13,000 years ago. Research now indicates that sizable areas of southeastern Alaska along the inner continental shelf were not covered by ice toward the end of the last Ice Age. One study suggests that except for a 250-mile coastal area between southwestern British Columbia and Washington State, the Northwest Coast of North America was largely free of ice by approximately 16,000 years ago. Vast areas along the coast may have been deglaciated beginning around 16,000 years ago, possibly providing a coastal corridor for the movement of plants, animals, and humans sometime between 13,000 and 14,000 years ago.

7. The author's purpose in paragraph 4 is to

- indicate that a number of recent geologic studies seem to provide support for the coastal hypothesis
- indicate that coastal and inland migrations may have happened simultaneously
- explain why humans may have reached America's northwest coast before animals and plants did
- show that the coastal hypothesis may explain how people first reached Alaska but it cannot explain how people reached areas like modern British Columbia and Washington State

8. The word "Vast" in the passage is closest in meaning to

- Frozen
- Various
- Isolated
- Huge

Paragraph 5: The coastal hypothesis has gained increasing support in recent years because the remains of large land animals, such as caribou and brown bears, have been found in southeastern Alaska dating between 10,000 and 12,500 years ago. This is the time period in which most scientists formerly believed the area to be inhospitable for humans. It has been suggested that if the environment were capable of supporting breeding populations of bears, there would have been enough food resources to support humans. Fladmark and other believe that the first human colonization of America occurred by boat along the Northwest Coast during the very late Ice Age, possibly as early as 14,000 years ago. The most recent geologic evidence indicates that it may have been possible for people to colonize ice-free regions along the continental shelf that were still exposed by the lower sea level between 13,000 and 14,000 years ago.

9. According to paragraph 5, the discovery of the remains of large land animals supports the coastal hypothesis by providing evidence that

- humans were changing their hunting techniques to adapt to coastal rather than inland environments
- animals had migrated from the inland to the coasts, an indication that a midcontinental ice-free corridor was actually implausible
- humans probably would have been able to find enough resources along the coastal corridor
- the continental shelf was still exposed by lower sea levels during the period when the southward migration of people began

10. The word "inhospitable" in the passage is closest in meaning to

- not familiar
- not suitable
- not dangerous
- not reachable

11. According to paragraph 5, the most recent geologic research provides support for a first colonization of America dating as far back as

- 16,000 years ago
- 14,000 years ago
- 12,500 years ago
- 10,000 years ago

Paragraph 6: The coastal hypothesis suggests an economy based on marine mammal hunting, saltwater fishing gathering, and the use of watercraft. Because of the barrier of ice to the east, the Pacific Ocean to the west, and populated areas to the north, there may have been a greater impetus for people to move in a southerly direction.

12. The word “**impetus**” in the passage is closest in meaning to

- chance
- protection
- possibility
- incentive

Paragraph 1: It has long been accepted that the Americas were colonized by a migration of peoples from Asia, slowly traveling across a land bridge called Beringia (now the Bering Strait between northeastern Asia and Alaska) during the last Ice Age. ■The first water craft theory about the migration was that around 11,000-12,000 years ago there was an ice-free corridor stretching from eastern Beringia to the areas of North America south of the great northern glaciers. It was the midcontinental corridor between two massive ice sheets-the Laurentide to the west-that enabled the southward migration. ■But belief in this ice-free corridor began to crumble when paleoecologist Glen MacDonald demonstrated that some of the most important radiocarbon dates used to support the existence of an ice-free corridor were incorrect. ■He persuasively argued that such an ice-free corridor did not exist until much later, when the continental ice began its final retreat. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Moreover, other evidence suggests that even if an ice-free corridor did exist, it would have lacked the resources needed for human colonization.

Where could the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some answer choices do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Recent evidence favors a rival to the long-standing theory that the Americas were colonized 11,000-12,000 years ago by people migrating south from Beringia along a midcontinental ice-free corridor.

-
-
-

Answer Choices

○Evidence that an ice-free corridor between two ice sheets developed when the continental ice first began to melt came primarily from radiocarbon dating.

○There is growing support for the theory that migration took place much earlier, by sea, following a coastal route along Alaska and down the northwest coast.

○Recent geologic evidence indicates that contrary to what had been believed, substantial areas along the coast were free of ice as early as 16,000 years ago.

○Research now indicates that the parts of the inner continental shelf that remained covered with ice were colonized by a variety of early human groups well adapted to living in extremely cold environments.

○There is evidence suggesting that areas along the coast may have contained enough food resources between 13,000 and 14,000 years ago to have made human colonization possible.

○Even though the northern part of the continent allowed for a more varied economy, several early human groups quickly moved south.

参考答案:

1. ○2
2. ○3
3. ○4
4. ○1
5. ○1
6. ○3
7. ○1
8. ○4
9. ○3
10. ○2
11. ○2
12. ○4
13. ○4
14. There is growing support...
Recent geologic evidence...
There is evidence suggesting...

从西海岸殖民美洲

这种观念被人们接受很长时间了：美洲被一群来自亚洲的移民殖民统治着，他们在上一个冰河时代缓慢的跨越了一个叫做白令的大陆桥（现在白令海峡位于东北亚和阿拉斯加之间）。关于这些迁徙的第一个水路理论表明，大概在 **11000** 到 **12000** 年前，有一个不冻的走廊，它从白令海峡东部延伸到北美（大北部冰河的南部），连在两个巨大冰床间的半大陆性走廊，向西的 **Laurentide** 使往南的迁移成为可能。但是当生态学者 **Glen MacDonald** 证明一些用来支持不冻走廊存在的重要放射性碳时间不正确时，对于不冻走廊的信念就被粉碎了。他令人信服的主张那样的不冻走廊直到很久以后才出现，那时大陆冰开始最后的消退。

另外一种理论得到越来越多的人的支持，它认为可能早在 **16,000** 年前，人们使用船只，也许是那种兽皮做的小船，从白令沿着阿拉斯加海湾，然后沿着北美的西北海岸前进。这条路线使人类可以在大陆冰河解冻之前进入美州南部地区。直到 **20** 世纪 **70** 年代早期，大部分考古学家都不认为海岸可能是进入美州的移民路线，因为地理学家一开始就坚信整个西北海岸在上个冰河时代是被冰覆盖的。人们猜测冰从阿拉斯加、加拿大山脉向西延伸到大陆架的边界，也就是大陆延伸到海洋中而被淹没的部分。这样就形成了一个由冰构成的，从阿拉斯加半岛，经过阿拉斯加海湾，向南沿着北美州西北海岸延伸至今天的华盛顿州的冰层。

海岸移民路线的最有影响力的支持者是加拿大考古学家 **Knut Fladmark**。他认为通过船只的使用，人们逐渐殖民到没有冰冻的地方以及沿着大陆架的、由于海平面较低而裸露出来的地区。**Fladmark** 的假设从一个事实那得到了更多的支持，因为美国本土语言的最大多样性出现在西海岸沿岸，这就表明这个地区是人类定居时间最早的。

更多最近的地质研究证明了 **13000** 年前在英属哥伦比亚、加拿大主要海岸地区无冰区域存在和结冰。现在研究表明，直到上个冰河时代末期，阿拉斯加东南、沿大陆架内的大部分地区并没有被冰层覆盖。一项研究表明，除了在英属哥伦比亚东南部和华盛顿州之间的 **250** 英里的海岸地区以外，北美的西北海岸在大概 **16000** 年之前都是没有冰的。沿海的辽阔地区的冰川在大约 **16000** 年前开始融化，这就为 **13000** 前 到 **14000** 年前的某一段时间内植物、动物和人类的迁移提供了一个海岸走廊。

海岸走廊假设近些年得到了越来越多的支持，因为一些大型动物（比如北美驯鹿，棕熊）的遗迹出现在阿拉斯加东南部地区，其时间为 **10000** 年到 **12500** 年之前。之前大部分科学家认为此时此地不适合人类生存的。如果一种环境能满足熊的繁殖，那么它就有足够的食物来源来供应人类的生存。**Fladmark** 和其他科学家都认为人类第一次乘船沿着西北岸到达美洲发生在冰河时代的晚期，可能早达 **14000** 年以前。多数最新的地质资料表明：**13000** 年 至 **14000** 年前，人们殖民因低海平面而裸露的大陆架沿岸的无冰区域是可能的。

海岸假设提出了一个以捕食海洋哺乳动物、搜捕咸水鱼类、使用船只为基础的自然经济。由于东部是冰障，西部是太平洋，北部是移民区，所以有一股强大的力量促使人们往南方迁移。

Reflection in Teaching

Teachers, it is thought, benefit from the practice of reflection, the conscious act of thinking deeply about and carefully examining the interactions and events within their own classrooms. Educators T. Wildman and J. Niles (1987) describe a scheme for developing reflective practice in experienced teachers. This was justified by the view that reflective practice could help teachers to feel more intellectually involved in their role and work in teaching and enable them to cope with the paucity of scientific fact and the uncertainty of knowledge in the discipline of teaching.

Wildman and Niles were particularly interested in investigating the conditions under which reflection might flourish—a subject on which there is little guidance in the literature. They designed an experimental strategy for a group of teachers in Virginia and worked with 40 practicing teachers over several years. They were concerned that many would be “drawn to these new, refreshing” conceptions of teaching only to find that the void between the abstractions and the realities of teacher reflection is too great to bridge. Reflection on a complex task such as teaching is not easy.” The teachers were taken through a program of talking about teaching events, moving on to reflecting about specific issues in a supported, and later an independent, manner.

Wildman and Niles observed that systematic reflection on teaching required a sound ability to understand classroom events in an objective manner. They describe the initial understanding in the teachers with whom they were working as being “utilitarian ... and not rich or detailed enough to drive systematic reflection.” Teachers rarely have the time or opportunities to view their own or the teaching of others in an objective manner. Further observation revealed the tendency of teachers to evaluate events rather than review the contributory factors in a considered manner by, in effect, standing outside the situation.

Helping this group of teachers to revise their thinking about classroom events became central. This process took time and patience and effective trainers. The researchers estimate that the initial training of the teachers to view events objectively took between 20 and 30 hours, with the same number of hours again being required to practice the skills of reflection.

Wildman and Niles identify three principles that facilitate reflective practice in a teaching situation. The first is support from administrators in an education system, enabling teachers to understand the requirements of reflective practice and how it relates to teaching students. The second is the availability of sufficient time and space. The teachers in the program described how they found it difficult to put aside the immediate demands of others in order to give themselves the time they needed to develop their reflective skills. The third is the development of a collaborative environment with support from other teachers. Support and encouragement were also required to help teachers in the program cope with aspects of their professional life with which they were not comfortable. Wildman and Niles make a summary comment: “Perhaps the most important thing we learned is the idea of the teacher-as-reflective-practitioner will not happen simply because it is a good or even compelling idea.”

The work of Wildman and Niles suggests the importance of recognizing some of the difficulties of instituting reflective practice. Others have noted this, making a similar point about the teaching profession’s cultural inhibitions about reflective practice. Zeichner and Liston (1987) point out the inconsistency between the role of the teacher as a (reflective) professional decision maker and the more usual role of the teacher as a technician, putting into practice the ideas of theirs. More basic than the cultural issues is the matter of motivation. Becoming a reflective practitioner requires extra work (Jaworski, 1993) and has only vaguely defined goals with, perhaps, little initially perceivable reward and the threat of vulnerability. Few have directly questioned what might lead a teacher to want to become reflective. Apparently, the most obvious reason for teachers to work toward reflective practice is that teacher educators

think it is a good thing. There appear to be many unexplored matters about the motivation to reflect – for example, the value of externally motivated reflection as opposed to that of teachers who might reflect by habit.

Paragraph 1: Teachers, it is thought, benefit from the practice of reflection, the conscious act of thinking deeply about and carefully examining the interactions and events within their own classrooms. Educators T. Wildman and J. Niles (1987) describe a scheme for developing reflective practice in experienced teachers. This was justified by the view that reflective practice could help teachers to feel more intellectually involved in their role and work in teaching and enable them to cope with the paucity of scientific fact and the uncertainty of knowledge in the discipline of teaching.

1. The word "justified" in the passage is closest in meaning to
 - supported
 - shaped
 - stimulated
 - suggested
2. According to paragraph 1, it was believed that reflection could help teachers
 - understand intellectual principles of teaching
 - strengthen their intellectual connection to their work
 - use scientific fact to improve discipline and teaching
 - adopt a more disciplined approach to teaching

Paragraph 2: Wildman and Niles were particularly interested in investigating the conditions under which reflection might flourish—a subject on which there is little guidance in the literature. They designed an experimental strategy for a group of teachers in Virginia and worked with 40 practicing teachers over several years. There were concerned that many would be “drawn to these new, refreshing” conceptions of teaching only to find that the void between the abstractions and the realities of teacher reflection is too great to bridge. Reflection on a complex task such as teaching is not easy.” The teachers were taken through a program of talking about teaching events, moving on to reflecting about specific issues in a supported, and later an independent, manner.

3. The word "flourish" in the passage is closest in meaning to
 - continue
 - occur
 - succeed
 - apply
4. All of the following are mentioned about the experimental strategy described in paragraph 2 EXCEPT:
 - It was designed so that teachers would eventually reflect without help from others.
 - It was used by a group of teachers over a period of years.
 - It involved having teachers take part in discussions of classroom events.
 - It involved having teachers record in writing their reflections about teaching.
5. According to paragraph 2, Wildman and Niles worried that the teachers they were working with might feel that
 - the number of teachers involved in their program was too large
 - the concepts of teacher reflection were so abstract that they could not be applied
 - the ideas involved in reflection were actually not new and refreshing

-
- several years would be needed to acquire the habit of reflecting on their teaching

Paragraph 3: Wildman and Niles observed that systematic reflection on teaching required a sound ability to understand classroom events in an **objective** manner. They describe the initial understanding in the teachers with whom they were working as being “utilitarian ... and not rich or detailed enough to drive systematic reflection.” Teachers rarely have the time or opportunities to view their own or the teaching of others in an objective manner. Further observation revealed the tendency of teachers to evaluate events rather than review the contributory factors in a considered manner by, in effect, standing outside the situation.

6. The word “**objective**” in the passage is closest in meaning to

- unbiased
- positive
- systematic
- thorough

7. According to paragraph 3, what did the teachers working with Wildman and Niles often fail to do when they attempted to practice reflection?

- Correctly calculate the amount of time needed for reflection.
- Provide sufficiently detailed descriptions of the methods they used to help them reflect.
- Examine thoughtfully the possible causes of events in their classrooms.
- Establish realistic goals for themselves in practicing reflection.

Paragraph 4: Helping this group of teachers to revise their thinking about classroom events became central. This process took time and patience and effective trainers. The researchers estimate that the initial training of the teachers to view events objectively took between 20 and 30 hours, with the same number of hours again being required to practice the skills of reflection.

8. How is paragraph 4 related to other aspects of the discussion of reflection in the passage?

- It describes and comments on steps taken to overcome problems identified earlier in the passage.
- It challenges the earlier claim that teachers rarely have the time to think about their own or others' teaching.
- It identifies advantages gained by teachers who followed the training program described earlier in the passage.
- It explains the process used to define the principles discussed later in the passage.

Paragraph 5: Wildman and Niles identify three principles that facilitate reflective practice in a teaching situation. The first is support from administrators in an education system, enabling teachers to understand the requirements of reflective practice and how it relates to teaching students. The second is the availability of sufficient time and space. The teachers in the program described how they found it difficult to put aside the immediate demands of others in order to give themselves the time they needed to develop their reflective skills. The third is the development of a collaborative environment with support from other teachers. Support and encouragement were also required to help teachers in the program cope with aspects of their professional life with which they were not comfortable. Wildman and Niles make a summary comment: “Perhaps the most important thing we learned is the idea of the teacher-as-reflective-practitioner will not happen simply because it is a good or even **compelling** idea.”

9. The word “**compelling**” in the passage is closest in meaning to

- commonly held
- persuasive
- original

Paragraph 6: The work of Wildman and Niles suggests the importance of recognizing some of the difficulties of instituting reflective practice. Others have noted this, making a similar point about the teaching profession's cultural inhibitions about reflective practice. Zeichner and Liston (1987) point out the inconsistency between the role of the teacher as a (reflective) professional decision maker and the more usual role of the teacher as a technician, putting into practice the ideas of theirs. More basic than the cultural issues is the matter of motivation. Becoming a reflective practitioner requires extra work (Jaworski, 1993) and has only vaguely defined goals with, perhaps, little initially perceivable reward and the threat of vulnerability. Few have directly questioned what might lead a teacher to want to become reflective. Apparently, the most obvious reason for teachers to work toward reflective practice is that teacher educators think it is a good thing. There appear to be many unexplored matters about the motivation to reflect – for example, the value of externally motivated reflection as opposed to that of teachers who might reflect by habit.

10. According to paragraph 6, teachers may be discouraged from reflecting because

- it is not generally supported by teacher educators
- the benefits of reflection may not be apparent immediately
- it is impossible to teach and reflect on one's teaching at the same time
- they have often failed in their attempts to become reflective practitioners

11. Which of the sentences below expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information

- The practice of being reflective is no longer simply a habit among teachers but something that is externally motivated.
- Most teachers need to explore ways to form the habit of reflection even when no external motivation exists.
- Many aspects of the motivation to reflect have not been studied, including the comparative benefits of externally motivated and habitual reflection among teachers.
- There has not been enough exploration of why teachers practice reflection as a habit with or without external motivation.

Paragraph 4: Helping this group of teachers to revise their thinking about classroom events became central. ■This process took time and patience and effective trainers. ■The researchers estimate that the initial training of the teachers to view events objectively took between 20 and 30 hours, with the same number of hours again being required to practice the skills of reflection.

Paragraph 5: ■Wildman and Niles identify three principles that facilitate reflective practice in a teaching situation. ■The first is support from administrators in an education system, enabling teachers to understand the requirements of reflective practice and how it relates to teaching students. The second is the availability of sufficient time and space. The teachers in the program described how they found it difficult to put aside the immediate demands of others in order to give themselves the time they needed to develop their reflective skills. The third is the development of a collaborative environment with support from other teachers. Support and encouragement were also required to help teachers in the program cope with aspects of their professional life with which they were not comfortable. Wildman and Niles make a summary comment: "Perhaps the most important thing we learned is the idea of the teacher-as-reflective-practitioner will not happen simply because it is a good or even compelling idea."

12. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

However, changing teachers' thinking about reflection will not succeed unless there is support for reflection in the teaching environment.

Where could the sentence best fit?

13. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some answer choices do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Wildman and Niles have conducted research on reflection in teaching

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-
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Answer Choices

- Through their work with Virginia teachers, Wildman and Niles proved conclusively that reflection, though difficult, benefits both teachers and students.
- Wildman and Niles found that considerable training and practice are required to understand classroom events and develop the skills involved in reflection.
- Wildman and Niles identified three principles that teachers can use to help themselves cope with problems that may arise as a result of reflection.
- Wildman and Niles concluded that teachers need sufficient resources as well as the cooperation and encouragement of others to practice reflection.
- There are numerous obstacles to implementing reflection in schools and insufficient understanding of why teachers might want to reflect.
- Whether teachers can overcome the difficulties involved in reflection may depend on the nature and intensity of their motivation to reflect.

参考答案:

1. ○1

2. ○2

3. ○3

4. ○4

5. ○2

6. ○1

7. ○3

8.○1

9. ○2

10. ○2

11. ○3

12. ○3

13. Wildman and Niles found that

Wildman and Niles concluded that

There are numerous obstacles to

教学中的反思

教师被认为受益于反思实践——有意识的更深入思考、仔细的检查他们教室里发生的事件以及相互影响。教育家 **T. Wildman** 和 **J. Niles(1987)**描述了一个在资深教师中开展反思实践的方案。这是合理的，因为人们认为反思的实践可以帮助老师们更加理性的对待他们的角色和他们从事的事业，并可以让他们能在教学准则中处理科学事实的缺乏和知识的不确定。

Wildman 和 **Niles** 都特别喜欢研究在哪种情况下反思可能大量出现——一个几乎没有任何文献指导的课题。他们给维吉利亚的一组教师设计了一个实验策略，并在几年内研究了 **40** 位教师。他们担心很多人可能“沉浸在这种全新的教育概念中，结果却发现教师反思的抽象概念和现实之间的鸿沟太大而无法逾越。要反思像教学这样复杂的工作并不容易”。要反思像教学这样复杂的事件不是容易的。老师们都参加了关于教学事件计划的讨论，紧接着在工作人员的协助下去反思具体问题，然后是独立反思。

Wildman 和 **Niles** 观察到系统教学反思需要一种以客观的方式来理解教室里发生事件的能力。他们起初认为参与研究的教师们太功利，并不是足够丰富和详细以促使系统反思的产生。教师们很少有机会和时间去客观的观察他们自己和其他老师的教学。更深的研究发现教师们更愿意评价事件而不是站在事件之外洞察一个事件的促进因素。

帮助这组教师修订他们关于课堂事件的认识变成了关键问题。这个过程需要时间和耐心以及有效的受训者。研究者认为训练同一个教师使他客观的看待事情需要大约 **20** 到 **30** 小时，而反思技巧的练习同样需要这么多时间。

Wildman 和 **Niles** 确定了促进在教学环境中实现反思行为的 **3** 个原则。第一就是来自教学系统管理层的支持，这使得教师们明白反思实践的必要条件，并知道它与教学之间的联系。第二就是需要足够的时间和空间。组织中的教师们抱怨说让他们放弃别人当时的要求而为自己腾出时间去提升自己的反思能力是很困难的。第三就是以其他教师的支持为基础的亲密无间的环境。组织中的教师同样需要支持和鼓励以帮助他们去应付他们职业生活中的不如意的方面。**Wildman** 和 **Niles** 作出了一个总结性的评论：“或许我们学到的最重要的观点就是教师不会因为这是好的，或者甚至是不可或缺的观念而自发的开展教学反思。”

Wildman 和 **Niles** 的工作表明认识进行反思的某些困难的重要性。也有其他人知道这个，并指出相似的关于反思行为的教学职业文化阻碍。**Zeichner** 和 **Liston(1987)**指出作为一个反思者的教师和作为一个将其他人观念付诸实施的教师之间，存在着角色上的不一致。比文化问题更基本的是动机问题。成为一个反思教学的执行者需要额外的付出（**Jaworski,1993**）而且只有一个模糊的目标，甚至不仅没有显而易见的回报，反而有易受责难的威胁。很少人直接质疑什么可能让一个教师想变成反思型教师。显然，使教师朝着反思行为奋斗的最直接的原因是教师教育家认为这是一件很好的事情。关于反思的动力存在许多未知的问题，例如外部驱动的反思的价值与通过习惯进行反思的价值是不同的。

The Arrival of Plant Life in Hawaii

When the Hawaiian Islands emerged from the sea as volcanoes, starting about five million years ago, they were far removed from other landmasses. Then, as blazing sunshine alternated with drenching rains, the harsh, barren surfaces of the black rocks slowly began to soften. Winds brought a variety of life-forms.

Spores light enough to float on the breezes were carried thousands of miles from more ancient lands and deposited at random across the bare mountain flanks. A few of these spores found a toehold on the dark, forbidding rocks and grew and began to work their transformation upon the land. Lichens were probably the first successful flora. These are not single individual plants; each one is a symbiotic combination of an alga and a fungus. The algae capture the sun's energy by photosynthesis and store it in organic molecules. The fungi absorb moisture and mineral salts from the rocks, passing these on in waste products that nourish algae. It is significant that the earliest living thing that built communities on these islands are examples of symbiosis, a phenomenon that depends upon the close cooperation of two or more forms of life and a principle that is very important in island communities.

Lichens helped to speed the decomposition of the hard rock surfaces, preparing a soft bed of soil that was abundantly supplied with minerals that had been carried in the molten rock from the bowels of Earth. Now, other forms of life could take hold: ferns and mosses (two of the most ancient types of land plants) that flourish even in rock crevices. These plants propagate by producing spores—tiny fertilized cells that contain all the instructions for making a new plant—but the spore are unprotected by any outer coating and carry no supply of nutrient. Vast numbers of them fall on the ground beneath the mother plants. Sometimes they are carried farther afield by water or by wind. But only those few spores that settle down in very favorable locations can start new life; the vast majority fall on barren ground. By force of sheer numbers, however, the mosses and ferns reached Hawaii, survived, and multiplied. Some species developed great size, becoming tree ferns that even now grow in the Hawaiian forests.

Many millions of years after ferns evolved (but long before the Hawaiian Islands were born from the sea), another kind of flora evolved on Earth: the seed-bearing plants. This was a wonderful biological invention. The seed has an outer coating that surrounds the genetic material of the new plant, and inside this covering is a concentrated supply of nutrients. Thus the seed's chances of survival are greatly enhanced over those of the naked spore. One type of seed-bearing plant, the angiosperm, includes all forms of blooming vegetation. In the angiosperm the seeds are wrapped in an additional layer of covering. Some of these coats are hard—like the shell of a nut—for extra protection. Some are soft and tempting, like a peach or a cherry. In some angiosperms the seeds are equipped with gossamer wings, like the dandelion and milkweed seeds. These new characteristics offered better ways for the seed to move to new habitats. They could travel through the air, float in water, and lie dormant for many months.

Plants with large, buoyant seeds—like coconuts—drift on ocean currents and are washed up on the shores. Remarkably resistant to the vicissitudes of ocean travel, they can survive prolonged immersion in saltwater when they come to rest on warm beaches and the conditions are favorable, the seed coats soften. Nourished by their imported supply of nutrients, the young plants push out their roots and establish their place in the sun.

By means of these seeds, plants spread more widely to new locations, even to isolated islands like the Hawaiian archipelago, which lies more than 2,000 miles west of California and 3,500 miles east of Japan. The seeds of grasses, flowers, and blooming trees made the long trips to these islands. (Grasses are simple forms of angiosperms that bear their encapsulated seeds on long stalks.) In a surprisingly short time, angiosperms filled many of the land areas on Hawaii that had been bare.

Paragraph 2: Spores light enough to float on the breezes were carried thousands of miles from more ancient lands and deposited at random across the bare mountain flanks. A few of these spores found a toehold on the dark, forbidding rocks and grew and began to work their transformation upon the land. Lichens were probably the first successful flora. These are not single individual plants; each one is a symbiotic combination of an alga and a fungus. The algae capture the sun's energy by photosynthesis and store it in organic molecules. The fungi absorb moisture and mineral salts from the rocks, passing these on in waste products that nourish algae. It is significant that the earliest living thing that built communities on these islands are examples of symbiosis, a phenomenon that depends upon the close cooperation of two or more forms of life and a principle that is very important in island communities.

1. The phrase "at random" in the passage is closest in meaning to
 - finally
 - over a long period of time
 - successfully
 - without a definite pattern
2. It can be inferred from paragraph 2 that the fungi in lichens benefit from their symbiotic relationship with algae in what way?
 - The algae help the fungi meet some of their energy needs.
 - The algae protect the fungi from the Sun's radiation.
 - The algae provide the fungi with greater space for absorbing water.
 - The fungi produce less waste in the presence of algae.
3. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
 - Some of the earliest important examples of symbiosis—the close cooperation of two or more living things—occur in island communities.
 - Symbiosis—the close cooperation of pairs or small groups of living organisms—is especially important in these island environments.
 - The first organisms on these islands worked together closely in a relationship known as symbiosis, which is particularly important on islands.
 - It is significant to note that organisms in the beginning stages of the development of island life cannot survive without close cooperation.

Paragraph 3: Lichens helped to speed the decomposition of the hard rock surfaces, preparing a soft bed of soil that was abundantly supplied with minerals that had been carried in the molten rock from the bowels of Earth. Now, other forms of life could take hold: ferns and mosses (two of the most ancient types of land plants) that flourish even in rock crevices. These plants propagate by producing spores—tiny fertilized cells that contain all the instructions for making a new plant—but the spore are unprotected by any outer coating and carry no supply of nutrient. Vast numbers of them fall on the ground beneath the mother plants. Sometimes they are carried farther afield by water or by wind. But only those few spores that settle down in very favorable locations can start new life; the vast majority fall on barren ground. By force of sheer numbers, however, the mosses and ferns reached Hawaii, survived, and multiplied. Some species developed great size, becoming tree ferns that even now grow in the Hawaiian forests.

4. The word "abundantly" in the passage is closest in meaning to

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- occasionally
 - plentifully
 - usefully
 - fortunately

5. The word “propagate” in the passage is closest in meaning to

- multiply
- emerge
- live
- evolve

6. According to paragraph 3, what was the relationship between lichens and ferns in the development of plant life on Hawaii?

- Ferns were able to grow because lichens created suitable soil.
- The decomposition of ferns produced minerals that were used by lichens.
- Lichens and ferns competed to grow in the same rocky environments.
- Lichens and ferns were typically found together in volcanic areas.

Paragraph 4: Many millions of years after ferns evolved (but long before the Hawaiian Islands were born from the sea), another kind of flora evolved on Earth: the seed-bearing plants. This was a wonderful biological invention. The seed has an outer coating that surrounds the genetic material of the new plant, and inside this covering is a concentrated supply of nutrients. Thus the seed's chances of survival are greatly enhanced over those of the naked spore. One type of seed-bearing plant, the angiosperm, includes all forms of blooming vegetation. In the angiosperm the seeds are wrapped in an additional layer of covering. Some of these coats are hard—like the shell of a nut—for extra protection. Some are soft and tempting, like a peach or a cherry. In some angiosperms the seeds are equipped with gossamer wings, like the dandelion and milkweed seeds. These new characteristics offered better ways for the seed to move to new habitats. They could travel through the air, float in water, and lie dormant for many months.

7. The word “This” in the passage refers to

- the spread of ferns and mosses in Hawaii
- the creation of the Hawaiian Islands
- the evolution of ferns
- the development of plants that produce seeds

8. According to paragraph 4, why do seeds have a greater chance of survival than spores do? To receive credit, you must select TWO answer choices.

- Seeds need less water to grow into a mature plant than spores do.
- Seeds do not need to rely on outside sources of nutrients.
- Seeds are better protected from environmental dangers than spores are.
- Seeds are heavier than spores and are therefore more likely to take root and grow.

9. Why does the author mention “a nut”, “a peach”, and “a cherry”?

- To indicate that some seeds are less likely to survive than others
- To point out that many angiosperms can be eaten
- To provide examples of blooming plants
- To illustrate the variety of coverings among angiosperm seeds

10. The word “dormant” in the passage is closest in meaning to

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- hidden
 - inactive
 - underground
 - preserved

Paragraph5: Plants with large, buoyant seeds—like coconuts—drift on ocean currents and are washed up on the shores. Remarkably resistant to the vicissitudes of ocean travel, they can survive prolonged immersion in saltwater when they come to rest on warm beaches and the conditions are favorable, the seed coats soften. Nourished by their imported supply of nutrients, the young plants push out their roots and establish their place in the sun.

11. According to paragraph 5, a major reason that coconuts can establish themselves in distant locations is that their seeds can

- survive long exposure to heat on island beaches
- float and survive for long periods in ocean water
- use saltwater for maintenance and growth
- maintain hard, protective coats even after growing roots

12. According to the passage, which of the following characteristics do spores and seeds have in common?

- They may be surrounded by several layers of covering.
- They are produced by flowering plants.
- They may be spread by wind.
- They are able to grow in barren soils.

Paragraph 3: Lichens helped to speed the decomposition of the hard rock surfaces, preparing a soft bed of soil that was abundantly supplied with minerals that had been carried in the molten rock from the bowels of Earth. Now, other forms of life could take hold: ferns and mosses (two of the most ancient types of land plants) that flourish even in rock crevices. ■These plants propagate by producing spores—tiny fertilized cells that contain all the instructions for making a new plant—but the spore are unprotected by any outer coating and carry no supply of nutrient. ■Vast numbers of them fall on the ground beneath the mother plants. ■Sometimes they are carried farther afield by water or by wind. ■But only those few spores that settle down in very favorable locations can start new life; the vast majority fall on barren ground. By force of sheer numbers, however, the mosses and ferns reached Hawaii, survived, and multiplied. Some species developed great size, becoming tree ferns that even now grow in the Hawaiian forests.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

So since the chances of survival for any individual spore are small, the plants have to produce many spores in order to propagate.

Where could the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some answer choices do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

After the formation of the Hawaiian Islands, much time passed before conditions were suitable for plant life.

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Answers Choices

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- Algae are classified as symbiotic because they produce energy through the process of photosynthesis.
 - The first successful plants on Hawaii were probably lichens, which consist of algae and fungi living in a symbiotic relationship.
 - Lichens helped create favorable conditions for the growth of spore-producing plants such as ferns and mosses.
 - Seed-bearing plants evolved much later than spore-producing plants, but both types of plants had evolved well before the formation of the Hawaiian Islands.
 - Unlike spores, seeds must move to new habitats in order to have a strong chance of survival and growth.
 - Seed-bearing plants arrived and spread quickly in Hawaii, thanks to characteristics that increased their seeds' ability to survive and to move to different areas.

参考答案:

1. ○4
2. ○1
3. ○3
4. ○2
5. ○1
6. ○1
7. ○4
8. ○2, 3
9. ○4
10. ○2
11. ○2
12. ○3
13. ○2
14. The first successful plants...
 - Lichens helped create favorable...
 - Seed-bearing plants arrived...

夏威夷植物的到来

大约五百万年以前，当夏威夷群岛作为火山在从海洋中出现的时候，他们与其他大陆相距甚远。然后，经过了炙热阳光和湿润雨水的交替作用之后，那荒芜的黑色的岩石表面开始渐渐的变软。最后，大风就携带来了各种各样的生命。

孢子很轻，可以被微风携带着从更古老的陆地飘过几千英里并随机的降落在荒芜的山腰上。一些孢子在漆黑坚硬的岩石中找到了立足点，并生长起来，开始了它们向整个陆地蔓延的工作。地衣可能就是第一批成功安家的植物，它们不是单一的一种植物，每一个都是海藻和真菌的共生体。海藻通过光合作用获取太阳的能量，并将它储存在有机的分子中。真菌从岩石中吸收水分和矿物盐，并将这些作为代谢废物为海藻施肥。岛屿上的最早的生物群落以共生的方式存在是非常重要的。共生是一种依靠两种或两种以上的生物紧密合作而生存的现象，也是岛屿上生物群落非常重要的一项原则。

地衣有利于加速坚硬的岩石表面的分解，并产生了一层柔软的土壤，这些土壤可以提供熔融岩石含有的来自地球内部的丰富的矿物质。现在其他形式的生命就可以安家了：蕨类植物和苔藓（两种最古老的陆地植物品种）甚至可以在岩石缝隙里繁衍。这些植物通过产生孢子来繁殖，孢子是一些有营养的细胞，它们携带了所有的用于生长一株新的植物的遗传物质，但是它没有任何外部表皮的保护，也没携带供应营养的组织。大量的孢子降落在母体植物下面的土地上，有时候它们被流水和风力带到了更远的地方。但是只有那些停驻在绝好的地方的孢子可以开始新的生命，绝大部分的孢子会落在不含矿物的岩层上。占着绝对数量上的优势，蕨类植物和地衣到达了夏威夷群岛存活下来，并繁衍开去。其中一些物种体型巨大，成为椰子树，它们甚至现在还生长在夏威夷的森林中。

在蕨类植物进化了好几百万年之后（不过，还是远在夏威夷群岛出现之前）另一种植物开始在地球上进化：种子植物。这是一次惊人的生物进化，种子有一层裹在遗传物质外面的表皮，在表皮里面是一种浓缩了的营养供给组织。因此，物种的成活率相对于那些裸露的孢子大大的提高了。其中一种种子植物——被子植物，包含了所有开花植物。在被子植物中，种子被另外的一层外皮包裹着。其中的一些表皮很坚硬——就像坚果的外壳——可以提供额外的保护。有一些则很软、诱人，比如桃子或樱桃。还有一些被子植物的种子携带有薄纱一样的翅膀，比如说蒲公英和马利筋的种子。这种特征为种子转移到新的栖息地提供了更好的途径，它们可以通过空气、流水传播并可以保存好几个月。

一些拥有硕大的、可以浮于水面的种子的植物，像椰子，随洋流飘荡，被冲上海岸。对洋流变动抵抗的耐久性使得他们可以在海水的长期浸泡中生存下来。当他们停歇在温暖的海滩上，一旦条件合适，种子的外皮就开始变软。由于受到内部携带的营养物质的滋养，幼小的植物伸出他们的根部，并开始在阳光下成长。

借助这些种子，植物传播到更远的地方，甚至是像夏威夷群岛这样的孤立的群岛上。夏威夷群岛位于加利福利亚以西 **2000** 英里和日本以东 **3500** 英里。草，花和树木的种子经过长途跋涉到达那些岛屿上（草类是一类将其种子孕育在长长的秸秆中的被子植物）。在短得惊人的时间内，被子植物覆盖了夏威夷群岛上的很大一部分荒芜地面。

《新托福真题详解--阅读分卷》（第二册）中包含了 **OG Test 2** 和 **TPO10-15** 的题目解析

OG Test 2

Feeding Habits of East African Herbivores

Buffalo, zebras, wildebeests, topi, and Thomson's gazelles live in huge groups that together make up some 90 percent of the total weight of mammals living on the Serengeti Plain of East Africa. They are all herbivores (plant-eating animals), and they all appear to be living on the same diet of grasses, herbs, and small bushes. This appearance, however, is illusory. When biologist Richard Bell and his colleagues analyzed the stomach contents of four of the five species (they did not study buffalo), they found that each species was living on a different part of the vegetation. The different vegetational parts differ in their food qualities: lower down, there are succulent, nutritious leaves; higher up are the harder stems. There are also sparsely distributed, highly nutritious fruits, and Bell found that only the Thomson's gazelles eat much of these. The other three species differ in the proportion of lower leaves and higher stems that they eat: zebras eat the most stem matter, wildebeests eat the most leaves, and topi are intermediate.

How are we to understand their different feeding preferences? The answer lies in two associated differences among the species, in their digestive systems and body sizes. According to their digestive systems, these herbivores can be divided into two categories: the nonruminants (such as the zebra, which has a digestive system like a horse) and the ruminants (such as the wildebeest, topi, and gazelle, which are like the cow). Nonruminants cannot extract much energy from the hard parts of a plant; however, this is more than made up for by the fast speed at which food passes through their guts. Thus, when there is only a short supply of poor-quality food, the wildebeest, topi, and gazelle enjoy an advantage. They are ruminants and have a special structure (the rumen) in their stomachs, which contains microorganisms that can break down the hard parts of plants. Food passes only slowly through the ruminant's gut because ruminating—digesting the hard parts—takes time. The ruminant continually regurgitates food from its stomach back to its mouth to chew it up further (that is what a cow is doing when “chewing cud”). Only when it has been chewed up and digested almost to a liquid can the food pass through the rumen and on through the gut. Larger particles cannot pass through until they have been chewed down to size. Therefore, when food is in short supply, a ruminant can last longer than a nonruminant because it can derive more energy out of the same food. The difference can partially explain the eating habits of the Serengeti herbivores. The zebra chooses areas where there is more low-quality food. It migrates first to unexploited areas and chomps the abundant low-quality stems before moving on. It is a fast-in/fast-out feeder, relying on a high output of incompletely digested food. By the time the wildebeests (and other ruminants) arrive, the grazing and trampling of the zebras will have worn the vegetation down. As the ruminants then set to work, they eat down to the lower, leafier parts of the vegetation. All of this fits in with the differences in stomach contents with which we began.

The other part of the explanation is body size. Larger animals require more food than smaller animals, but smaller animals have a higher metabolic rate. Smaller animals can therefore live where there is less food, provided that such food is of high energy content. That is why the smallest of the herbivores, Thomson's gazelle, lives on fruit that is very nutritious but too thin on the ground to support a larger animal. By contrast, the large zebra lives on the

masses of low-quality stem material.

The differences in feeding preferences lead, in turn, to differences in migratory habits. The wildebeests follow, in their migration, the pattern of local rainfall. The other species do likewise. But when a new area is fueled by rain, the mammals migrate toward it in a set order to exploit it. The larger, less fastidious feeders, the zebras, move in first; the choosier, smaller wildebeests come later; and the smallest species of all, Thomson's gazelle, arrives last. The later species all depend on the preparations of the earlier one, for the actions of the zebra alter the vegetation to suit the stomachs of the wildebeest, topi, and gazelle.

Paragraph 1: Buffalo, zebras, wildebeests, topi, and Thomson's gazelles live in huge groups that together make up some 90 percent of the total weight of mammals living on the Serengeti Plain of East Africa. They are all herbivores (plant-eating animals), and they all appear to be living on the same diet of grasses, herbs, and small bushes. This appearance, however, is illusory. When biologist Richard Bell and his colleagues analyzed the stomach contents of four of the five species (they did not study buffalo), they found that each species was living on a different part of the vegetation. The different vegetational parts differ in their food qualities: lower down, there are succulent, nutritious leaves; higher up are the harder stems. There are also sparsely distributed, highly nutritious fruits, and Bell found that only the Thomson's gazelles eat much of these. The other three species differ in the proportion of lower leaves and higher stems that they eat: zebras eat the most stem matter, wildebeests eat the most leaves, and topi are intermediate.

1. The word illusory in the passage is closest in meaning to
 - definite
 - illuminating
 - misleading
 - exceptional
2. The word sparsely in the passage is closest in meaning to
 - widely
 - thinly
 - clearly
 - freshly
3. Which of the following questions about Richard Bell's research is NOT answered in paragraph 1?
 - Which of the herbivores studied is the only one to eat much fruit?
 - Which part of the plants do wildebeests prefer to eat?
 - Where did the study of herbivores' eating habits take place?
 - Why were buffalo excluded from the research study?

Paragraph 2: How are we to understand their different feeding preferences? The answer lies in two associated differences among the species, in their digestive systems and body sizes. According to their digestive systems, these herbivores can be divided into two categories: the nonruminants (such as the zebra, which has a digestive system like a horse) and the ruminants (such as the wildebeest, topi, and gazelle, which are like the cow). Nonruminants cannot extract much energy from the hard parts of a plant; however, this is more than made up for by the fast speed at which food passes through their guts. Thus, when there is only a short supply of poor-quality food, the wildebeest, topi, and gazelle enjoy an advantage. They are ruminants and have a special structure (the rumen) in their stomachs, which contains microorganisms that can break down the hard parts of plants. Food passes only slowly through the ruminant's gut because ruminating—digesting the hard parts—takes time. The ruminant continually regurgitates food from its stomach back to its mouth to chew it up further (that is what a cow is doing when “chewing cud”). Only when it has

been chewed up and digested almost to a liquid can the food pass through the rumen and on through the gut. Larger particles cannot pass through until they have been chewed down to size. Therefore, when food is in short supply, a ruminant can last longer than a nonruminant because it can derive more energy out of the same food. The difference can partially explain the eating habits of the Serengeti herbivores. The zebra chooses areas where there is more low-quality food. It migrates first to unexploited areas and chomps the abundant low-quality stems before moving on. It is a fast-in/fast-out feeder, relying on a high output of incompletely digested food. By the time the wildebeests (and other ruminants) arrive, the grazing and trampling of the zebras will have worn the vegetation down. As the ruminants then set to work, they eat down to the lower, leafier parts of the vegetation. All of this fits in with the differences in stomach contents with which we began.

4. The word associated in the passage is closest in meaning to

- obvious
- significant
- expected
- connected

5. The author mentions the cow and the horse in paragraph 2 in order to

- distinguish the functioning of their digestive systems from those of East African animals
- emphasize that their relatively large body size leads them to have feeding practices similar to those of East African mammals
- illustrate differences between ruminants and nonruminants through the use of animals likely to be familiar to most readers
- emphasize similarities between the diets of cows and horses and the diets of East African mammals

6. According to paragraph 2, which of the following herbivores has to eat large quantities of plant stems because it gains relatively little energy from each given quantity of this food?

- The gazelle
- The wildebeest
- The zebra
- The topi

7. Paragraph 2 suggests that which of the following is one of the most important factors in determining differences in feeding preferences of East African herbivores?

- The availability of certain foods
- The differences in stomach structure
- The physical nature of vegetation in the environment
- The ability to migrate when food supplies are low

8. According to paragraph 2, all of the following are true of East African gazelles EXCEPT:

- They digest their food very quickly.
- Microorganisms help them digest their food.
- They are unable to digest large food particles unless these are chewed down considerably.
- They survive well even if food supplies are not abundant.

Paragraph 3: The other part of the explanation is body size. Larger animals require more food than smaller animals, but smaller animals have a higher metabolic rate. Smaller animals can therefore live where there is less food, provided that such food is of high energy content. That is why the smallest of the herbivores, Thomson's gazelle, lives on fruit that is very nutritious but too thin on the ground to support a larger animal. By contrast, the large zebra

lives on the masses of low-quality stem material.

9. The phrase provided that in the passage is closest in meaning to

- ☐ as long as
- ☐ unless
- ☐ as if
- ☐ even though

Paragraph 4: The differences in feeding preferences lead, in turn, to differences in migratory habits. The wildebeests follow, in their migration, the pattern of local rainfall. The other species do likewise. But when a new area is fueled by rain, the mammals migrate toward it in a set order to exploit it. The larger, less fastidious feeders, the zebras, move in first; the choosier, smaller wildebeests come later; and the smallest species of all, Thomson's gazelle, arrives last. The later species all depend on the preparations of the earlier one, for the actions of the zebra alter the vegetation to suit the stomachs of the wildebeest, topi, and gazelle.

10. The word fastidious in the passage is closest in meaning to

- ☐ rapid
- ☐ determined
- ☐ flexible
- ☐ demanding

11. According to paragraph 4, which of the following mammals exhibits a feeding behavior that is beneficial to the other herbivores that share the same habitat?

- ☐ Topi
- ☐ Zebra
- ☐ Wildebeest
- ☐ Gazelle

12. According to the passage, which of the following is true of wildebeests?

- ☐ They eat more stem matter than zebras do.
- ☐ They are able to digest large food particles if the food is of a high quality.
- ☐ They tend to choose feeding areas in which the vegetation has been worn down.
- ☐ They are likely to choose low-quality food to eat in periods when the quantity of rainfall is low.

Paragraph 4: The differences in feeding preferences lead, in turn, to differences in migratory habits. ■ The wildebeests follow, in their migration, the pattern of local rainfall. ■ The other species do likewise. ■ But when a new area is fueled by rain, the mammals migrate toward it in a set order to exploit it. ■ The larger, less fastidious feeders, the zebras, move in first; the choosier, smaller wildebeests come later; and the smallest species of all, Thomson's gazelle, arrives last. The later species all depend on the preparations of the earlier one, for the actions of the zebra alter the vegetation to suit the stomachs of the wildebeest, topi, and gazelle.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

The sequence in which they migrate correlates with their body size.

Where would the sentence best fit?

14. Directions: An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor

ideas in the passage. This question is worth 2 points.

East African herbivores, though they all live in the same environment, have a range of feeding preferences.

-
-
-

Answer Choices

○The survival of East African mammals depends more than anything else on the quantity of highly nutritious fruits that they are able to find.

○A herbivore's size and metabolic rate affect the kinds of food and the quantities of food it needs to eat.

○Zebras and wildebeests rarely compete for the same food resources in the same locations.

○The different digestive systems of herbivores explain their feeding preferences.

○Migratory habits are influenced by feeding preferences.

○Patterns in the migratory habits of East African herbivores are hard to establish.

参考答案

1. ○3
2. ○2
3. ○4
4. ○4
5. ○3
6. ○3
7. ○2
8. ○1
9. ○1
10. ○4
11. ○2
12. ○3
13. ○4
14. ○2, 4, 5

东非草食动物的饮食

野牛，斑马，角马，转角牛羚和汤氏羚这些群居动物占据了非洲东部塞伦盖蒂平原的总哺乳动物的数量的 **90%**。它们都是草食动物（以吃植物为生的动物），并且看似有着相同的日常饮食：草，香草，和小的灌木。不过，这个现象是假的。在生物学家 **Richard Bell** 和他的同僚分析 **5** 种物种其中的 **4** 个（他们没有研究野牛）的胃内含量时，他们发现其实每个物种所食用的植物部位是不同的。这些不一样的植物部分是区分于它们的食物质量：下部的是多汁又营养的树叶；上面的部分则是更坚硬的茎秆。**Bell** 还在汤氏羚的胃里发现了一些分布稀少的高营养含量的水果，不过只有汤氏羚吃这些。其他三个物种是因为所食用的低树叶和高的茎秆的比例不同而区别的：斑马主要吃茎秆部分，角马主要吃树叶，转角牛羚则一半一半。

那么我们怎样来理解他们这些不同的食物选择呢？答案就在所有物种的两个相互关联的差异：他们的消化系统和体型大小。这些草食动物可根据他们的消化系统而分为两类：非反刍动物（比如说有着和马类似消化系统的斑马）和反刍动物（比如角马，转角牛羚，和小羚羊，他们的则和奶牛的相似）。非反刍动物并不能够从植物的坚硬部分提取出很多能量；不管怎样，能有这些能量已经不错了，因为这些是相对于食物是以一个非常快的速度进入肠胃的情况产生的。因此，当只有供应不足的质量低劣的食物时，角马，转角牛羚和小羚羊享有了优势。因为他们是反刍动物，而反刍动物的胃部含有能够分解食物坚硬部分的微生物的特殊结构（瘤胃）。食物只很慢的在反刍动物的肠胃里传递，因为反刍的过程—消化坚硬的部分—需要一定时间。反刍动物不断地将胃里的食物返回嘴里继续咀嚼（这就是奶牛在“反刍”时所做的）。只有当食物在经过咀嚼和消化的过程变成近似液体的时候，它才可能通过瘤胃并进入和通过肠胃。比较大的颗粒在被咀嚼成小块之前，是不能通过的。所以，当食物供不应求时，一个反刍动物可以比一个非反刍动物活的时间更长，因为它能从同样的食物中提取到更多的能量。这个差异部分的解释了塞伦盖蒂草食动物的饮食习惯。斑马选择的是有更多低质量食物的区域。它首先迁移到未被开垦的区域，并在继续迁移前，食用掉当地充足的低质量食物。斑马是一个新陈代谢很快的进食者，这一结论依据于它们的大量的排泄物都是那些没有被完全消化的食物。当角马（或其他反刍动物）到来时，斑马的食草和踩踏已经把当地的植被进行耗损筛选了。所以当这些反刍动物开始行动时，它们吃的是植物较矮的叶状的部分。所有这些答案都符合了我们最开始提到的胃含量的差异。

另一方面的解释则是体型的大小。体型较大的动物相对于较小的需要更多的食物，而小型动物具有更高的代谢率。所以更小的动物可以居住在有少量食物的地方，如果这种食物是具有高能量的话。这就是为什么，具有最小体型的汤氏羚，可以以水果这样一个很有营养，但是对于支撑大型动物来说过于单薄的食物生存下去。相反，大斑马是居住在具有大量低质量茎秆的地方。

依次下来，食物选择的差异进而造成了迁移习性的不同。角马的迁移遵循的是当地的降雨类型。其他物种的做法也与其相似。但当一个新的地点被发现降水量充足时，哺乳动物以一定的先后顺序向此地迁徙的。较大的，不那么挑剔的进食者斑马最先移入；比较挑剔的稍小的角马第二个；汤氏羚，作为这些当中最小的物种，则是最后。就像斑马给角马，转角牛羚和汤氏羚的食物进行了筛选一样，后进来的物种是要依赖于前面物种给它们所做的准备的。

Loie Fuller

The United States dancer Loie Fuller (1862–1928) found theatrical dance in the late nineteenth century artistically unfulfilling. She considered herself an artist rather than a mere entertainer, and she, in turn, attracted the notice of other artists.

Fuller devised a type of dance that focused on the shifting play of lights and colors on the voluminous skirts or draperies she wore, which she kept in constant motion principally through movements of her arms, sometimes extended with wands concealed under her costumes. She rejected the technical virtuosity of movement in ballet, the most prestigious form of theatrical dance at that time, perhaps because her formal dance training was minimal. Although her early theatrical career had included stints as an actress, she was not primarily interested in storytelling or expressing emotions through dance; the drama of her dancing emanated from her visual effects.

Although she discovered and introduced her art in the United States, she achieved her greatest glory in Paris, where she was engaged by the Folies Bergère in 1892 and soon became “La Loie,” the darling of Parisian audiences. Many of her dances represented elements or natural objects—Fire, the Lily, the Butterfly, and so on—and thus accorded well with the fashionable Art Nouveau style, which emphasized nature imagery and fluid, sinuous lines. Her dancing also attracted the attention of French poets and painters of the period, for it appealed to their liking for mystery, their belief in art for art’s sake, a nineteenth-century idea that art is valuable in itself rather than because it may have some moral or educational benefit, and their efforts to synthesize form and content.

Fuller had scientific leanings and constantly experimented with electrical lighting (which was then in its infancy), colored gels, slide projections, and other aspects of stage technology. She invented and patented special arrangements of mirrors and concocted chemical dyes for her draperies. Her interest in color and light paralleled the research of several artists of the period, notably the painter Seurat, famed for his Pointillist technique of creating a sense of shapes and light on canvas by applying extremely small dots of color rather than by painting lines. One of Fuller’s major inventions was underlighting, in which she stood on a pane of frosted glass illuminated from underneath. This was particularly effective in her *Fire Dance* (1895), performed to the music of Richard Wagner’s “Ride of the Valkyries.” The dance caught the eye of artist Henri de Toulouse-Lautrec, who depicted it in a lithograph.

As her technological expertise grew more sophisticated, so did the other aspects of her dances. Although she gave little thought to music in her earliest dances, she later used scores by Gluck, Beethoven, Schubert, Chopin, and Wagner, eventually graduating to Stravinsky, Fauré, Debussy, and Mussorgsky, composers who were then considered progressive. She began to address more ambitious themes in her dances such as *The Sea*, in which her dancers invisibly agitated a huge expanse of silk, played upon by colored lights. Always open to scientific and technological innovations, she befriended the scientists Marie and Pierre Curie upon their discovery of radium and created a *Radium Dance*, which simulated the phosphorescence of that element. She both appeared in films—then in an early stage of development—and made them herself; the hero of her fairy-tale film *Le Lys de la Vie* (1919) was played by René Clair, later a leading French film director.

At the Paris Exposition in 1900, she had her own theater, where, in addition to her own dances, she presented pantomimes by the Japanese actress Sada Yocco. She assembled an all-female company at this time and established a school around 1908, but neither survived her. Although she is remembered today chiefly for her innovations in stage lighting, her activities also touched Isadora Duncan and Ruth St. Denis, two other United States dancers who were experimenting with new types of dance. She sponsored Duncan’s first appearance in Europe. Her theater at the Paris Exposition was visited by St. Denis, who found new ideas about stagecraft in Fuller’s work and fresh sources for her art.

in Sada Yocco's plays. In 1924 St. Denis paid tribute to Fuller with the duet *Valse à la Loie*.

Paragraph 1: The United States dancer Loie Fuller (1862–1928) found theatrical dance in the late nineteenth century artistically unfulfilling. She considered herself an artist rather than a mere entertainer, and she, in turn, attracted the notice of other artists.

1. What can be inferred from paragraph 1 about theatrical dance in the late nineteenth century?

- It influenced many artists outside of the field of dance.
- It was very similar to theatrical dance of the early nineteenth century.
- It was more a form of entertainment than a form of serious art.
- It was a relatively new art form in the United States.

Paragraph 2: Fuller devised a type of dance that focused on the shifting play of lights and colors on the voluminous skirts or draperies she wore, which she kept in constant motion principally through movements of her arms, sometimes extended with wands concealed under her costumes. She rejected the technical virtuosity of movement in ballet, the most prestigious form of theatrical dance at that time, perhaps because her formal dance training was minimal. Although her early theatrical career had included stints as an actress, she was not primarily interested in storytelling or expressing emotions through dance; the drama of her dancing emanated from her visual effects.

2. According to paragraph 2, all of the following are characteristic of Fuller's type of dance EXCEPT

- experimentation using color
- large and full costumes
- continuous movement of her costumes
- technical virtuosity of movement

3. The word "prestigious" in the passage is closest in meaning to

- highly regarded
- financially rewarding
- demanding
- serious

4. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Fuller was more interested in dance's visual impact than in its narrative or emotional possibilities.
- Fuller used visual effects to dramatize the stories and emotions expressed in her work.
- Fuller believed that the drama of her dancing sprang from her emotional style of storytelling.
- Fuller's focus on the visual effects of dance resulted from her early theatrical training as an actress.

Paragraph 3: Although she discovered and introduced her art in the United States, she achieved her greatest glory in Paris, where she was engaged by the Folies Bergère in 1892 and soon became "La Loie," the darling of Parisian audiences. Many of her dances represented elements or natural objects—Fire, the Lily, the Butterfly, and so on—and thus accorded well with the fashionable Art Nouveau style, which emphasized nature imagery and fluid, sinuous lines. Her dancing also attracted the attention of French poets and painters of the period, for it appealed to their liking for mystery, their belief in art for art's sake, a nineteenth-century idea that art is valuable in itself rather than because it may have some moral or educational benefit, and their efforts to synthesize form and content.

5. The word “engaged” in the passage is closest in meaning to

- noticed
- praised
- hired
- attracted

6. The word “synthesize” in the passage is closest in meaning to

- improve
- define
- simplify
- integrate

7. According to paragraph 3, why was Fuller’s work well received in Paris?

- Parisian audiences were particularly interested in artists and artistic movements from the United States.
- Influential poets tried to interest dancers in Fuller’s work when she arrived in Paris.
- Fuller’s work at this time borrowed directly from French artists working in other media.
- Fuller’s dances were in harmony with the artistic values already present in Paris.

Paragraph 4: Fuller had scientific leanings and constantly experimented with electrical lighting (which was then in its infancy), colored gels, slide projections, and other aspects of stage technology. She invented and patented special arrangements of mirrors and concocted chemical dyes for her draperies. Her interest in color and light paralleled the research of several artists of the period, notably the painter Seurat, famed for his Pointillist technique of creating a sense of shapes and light on canvas by applying extremely small dots of color rather than by painting lines. One of Fuller’s major inventions was underlighting, in which she stood on a pane of frosted glass illuminated from underneath. This was particularly effective in her *Fire Dance* (1895), performed to the music of Richard Wagner’s “Ride of the Valkyries.” The dance caught the eye of artist Henri de Toulouse-Lautrec, who depicted it in a lithograph.

8. According to paragraph 4, Fuller’s *Fire Dance* was notable in part for its

- use of colored gels to illuminate glass
- use of dyes and paints to create an image of fire
- technique of lighting the dancer from beneath
- draperies with small dots resembling the Pointillist technique of Seurat

Paragraph 5: As her technological expertise grew more sophisticated, so did the other aspects of her dances. Although she gave little thought to music in her earliest dances, she later used scores by Gluck, Beethoven, Schubert, Chopin, and Wagner, eventually graduating to Stravinsky, Fauré, Debussy, and Mussorgsky, composers who were then considered progressive. She began to address more ambitious themes in her dances such as *The Sea*, in which her dancers invisibly agitated a huge expanse of silk, played upon by colored lights. Always open to scientific and technological innovations, she befriended the scientists Marie and Pierre Curie upon their discovery of radium and created a *Radium Dance*, which simulated the phosphorescence of that element. She both appeared in films—then in an early stage of development—and made them herself; the hero of her fairy-tale film *Le Lys de la Vie* (1919) was played by René Clair, later a leading French film director.

9. Why does the author mention Fuller’s *The Sea*?

- To point out a dance of Fuller’s in which music did not play an important role
- To explain why Fuller sometimes used music by progressive composers
- To illustrate a particular way in which Fuller developed as an artist

○To illustrate how Fuller's interest in science was reflected in her work

10. The word “**agitated**” in the passage is closest in meaning to

- emerged from beneath
- created movement in
- arranged themselves in
- pretended to be

Paragraph 6: At the Paris Exposition in 1900, she had her own theater, where, in addition to her own dances, she presented pantomimes by the Japanese actress Sada Yocco. She assembled an all-female company at this time and established a school around 1908, but neither survived her. Although she is remembered today chiefly for her innovations in stage lighting, her activities also touched Isadora Duncan and Ruth St. Denis, two other United States dancers who were experimenting with new types of dance. She sponsored Duncan's first appearance in Europe. Her theater at the Paris Exposition was visited by St. Denis, who found new ideas about stagecraft in Fuller's work and fresh sources for her art in Sada Yocco's plays. In 1924 St. Denis paid tribute to Fuller with the duet *Valse à la Loie*.

11. According to paragraph 6, what was true of Fuller's theater at the Paris Exposition?

- It presented some works that were not by Fuller.
- It featured performances by prominent male as well as female dancers.
- It became a famous school that is still named in honor of Fuller.
- It continued to operate as a theater after Fuller died.

12. The passage mentions which of the following as a dance of Fuller's that was set to music?

- Fire Dance*
- Radium Dance*
- Le Lys de la Vie*
- Valse à la Loie*

Paragraph 5: As her technological expertise grew more sophisticated, so did the other aspects of her dances. ■ Although she gave little thought to music in her earliest dances, she later used scores by Gluck, Beethoven, Schubert, Chopin, and Wagner, eventually graduating to Stravinsky, Fauré, Debussy, and Mussorgsky, composers who were then considered progressive. ■ She began to address more ambitious themes in her dances such as *The Sea*, in which her dancers invisibly agitated a huge expanse of silk, played upon by colored lights. ■ Always open to scientific and technological innovations, she befriended the scientists Marie and Pierre Curie upon their discovery of radium and created a *Radium Dance*, which simulated the phosphorescence of that element. ■ She both appeared in films—then in an early stage of development—and made them herself; the hero of her fairy-tale film *Le Lys de la Vie* (1919) was played by René Clair, later a leading French film director.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

For all her originality in dance, her interests expanded beyond it into newly emerging artistic media.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Loie Fuller was an important and innovative dancer.

-
-
-

Answer Choices

- Fuller believed that audiences in the late nineteenth century had lost interest in most theatrical dance.
- Fuller transformed dance in part by creating dance interpretations of works by poets and painters.
- Fuller's work influenced a number of other dancers who were interested in experimental dance.
- Fuller introduced many technical innovations to the staging of theatrical dance.
- Fuller continued to develop throughout her career, creating more complex works and exploring new artistic media.
- By the 1920's, Fuller's theater at the Paris Exhibition had become the world center for innovative dance.

参考答案:

1. ○3
2. ○4
3. ○1
4. ○1
5. ○3
6. ○4
7. ○4
8. ○3
9. ○3
10. ○2
11. ○1
12. ○1
13. ○4
14. Fuller's work influenced...
 - Fuller introduced many...
 - Fuller continued to...

Loie Fuller

Loie Fuller(1862-1928)作为一位美国的舞者，认为 19 世纪末的舞台式舞蹈缺乏艺术性。她把她自己定义为一位艺术家而不仅仅演艺人员，随之下来，她也得到了其他艺术家的关注。

Fuller 设计了一种注重灯光变换和她所穿的大体积的裙子或布料的颜色的舞蹈，所以她的舞姿则主要体现在上肢动作，而有些时候她的服装的体积是需要用隐藏在下面的棍状物体来填充实现的。她没有采用在当时的舞台式舞蹈上声望很高的高技术含量的芭蕾动作，原因可能是她所接受的正式舞蹈培训太少了。虽然在她早期的舞台事业里体现了作为一名艺术家的一些约束，她的主要精力并没有放在通过舞蹈来传递故事或感情上，而是通过视觉效应散发出她舞蹈的戏剧性。

尽管她是在美国找到并呈现了她的艺术，她最大的成就在巴黎，在 1892 年她被 **Folies Bergere**（一个巴黎剧院）所雇佣，而不久变成“**La Loie**”----巴黎观众的宠儿。因为她的很多舞蹈作品例如火，百合花，蝴蝶等等代表的都是一些元素或自然物体，所以它们与注重自然风景和流畅弯曲线条的时尚 **Art Nouveau** 的风格是一致的。她的舞蹈还吸引了当时法国的诗人和画家的注意，因为它符合他们对神秘色彩的喜好，他们对于艺术只为艺术产生的信仰----19 世纪艺术被认为它的本身比它所带来的道德或教育利益更有价值，和他们对外形和内容的合成所做的研究努力。

Fuller 本人倾向于科学，所以经常试用电气灯光（电灯在那个时候才刚刚面市），染色胶，投影片，和其他方面的舞台技术。她对色彩和灯光的研究与当时几位艺术家相应，特别是在画布上以描绘极其细微的点来创造形状和光泽，而不是用线条的而著名的点彩派画家 **Seurat**。**Fuller** 主要的发明之一是地面照明，意思是她站在一块毛玻璃上，而光是从下面照射上来的。这个发明尤其在她以 **Richard Wagner** 的“**Ride of the Valkyries**”作为背景音乐的作品火（1895）中起到了很大作用。这个舞蹈吸引了艺术家 **Henri de Toulouse-Lautrec** 的眼球，他把它在石版画中描绘了出来。

随着她的工艺技术变得更加成熟，也带动了她的舞蹈的其他方面。尽管她在早期舞蹈作品中，没有花太多心思在音乐上，但随后她使用了 **Gluck, Beethoven, Schubert, Chopin, 和 Wagner** 的乐曲，最后则变成了采用在当时被认为进步的一些作曲家的曲子，像 **Stravinsky, Fauré, Debussy, 和 Mussorgsky**。她开始强调更有野心的主题，比如作品大海，在这个作品中舞者在色光灯所创造的辽阔的隐形丝绸下摇摆。因为 **Fuller** 总是对科技创新抱有很开放的态度，她与科学家 **Marie 和 Pierre Curie** 在镭的研究中成为了朋友，并创造出了作品镭来模仿该元素的磷光。她也踏足了电影业----那个时候还处于早期发展中----她的电影都是自己制作拍摄的；在她的童话电影 **Le Lys de la Vie (1919)** 中饰演英雄角色的，是后来一名知名法国电影导演 **René Clair**。

在 1990 年的巴黎展览会上，她得到了一个独立剧场，在那里，除了她自己的舞蹈，她还呈现了日本女演员 **Sada Yocco** 的哑剧。1908 年左右，她成立了一个女子公司并建立了一所学校，但是哪个都没有成功。尽管她主要是被她所带来的舞台灯光革新所为人们熟知的，但她的事迹也与 **Isadora Duncan 和 Ruth St. Denis**，这两个当时尝试新型舞蹈的舞者有关。她赞助了 **Duncan** 在欧洲的首次亮相。**St. Denis** 拜访了她在巴黎展览会的博物馆，他分别为 **Fuller** 的作品和她在 **Sada Yocco** 剧本的艺术作为找到了新的编剧想法和鲜活的来源。1924 年，**St. Denis** 对 **Fuller** 的双人表演 **Valse à la Loie** 表达了赞赏。

Green Icebergs

Icebergs are massive blocks of ice, irregular in shape; they float with only about 12 percent of their mass above the sea surface. They are formed by glaciers—large rivers of ice that begin inland in the snows of Greenland, Antarctica, and Alaska—and move slowly toward the sea. The forward movement, the melting at the base of the glacier where it meets the ocean, and waves and tidal action cause blocks of ice to break off and float out to sea.

Icebergs are ordinarily blue to white, although they sometimes appear dark or opaque because they carry gravel and bits of rock. They may change color with changing light conditions and cloud cover, glowing pink or gold in the morning or evening light, but this color change is generally related to the low angle of the Sun above the horizon. However, travelers to Antarctica have repeatedly reported seeing green icebergs in the Weddell Sea and, more commonly, close to the Amery Ice Shelf in East Antarctica.

One explanation for green icebergs attributes their color to an optical illusion when blue ice is illuminated by a near-horizon red Sun, but green icebergs stand out among white and blue icebergs under a great variety of light conditions. Another suggestion is that the color might be related to ice with high levels of metallic compounds, including copper and iron. Recent expeditions have taken ice samples from green icebergs and ice cores—vertical, cylindrical ice samples reaching down to great depths—from the glacial ice shelves along the Antarctic continent. Analyses of these cores and samples provide a different solution to the problem.

The ice shelf cores, with a total length of 215 meters (705 feet), were long enough to penetrate through glacial ice—which is formed from the compaction of snow and contains air bubbles—and to continue into the clear, bubble-free ice formed from seawater that freezes onto the bottom of the glacial ice. The properties of this clear sea ice were very similar to the ice from the green iceberg. The scientists concluded that green icebergs form when a two-layer block of shelf ice breaks away and capsizes (turns upside down), exposing the bubble-free shelf ice that was formed from seawater.

A green iceberg that stranded just west of the Amery Ice Shelf showed two distinct layers: bubbly blue-white ice and bubble-free green ice separated by a one-meter-long ice layer containing sediments. The green ice portion was textured by seawater erosion. Where cracks were present, the color was light green because of light scattering; where no cracks were present, the color was dark green. No air bubbles were present in the green ice, suggesting that the ice was not formed from the compression of snow but instead from the freezing of seawater. Large concentrations of single-celled organisms with green pigments (coloring substances) occur along the edges of the ice shelves in this region, and the seawater is rich in their decomposing organic material. The green iceberg did not contain large amounts of particles from these organisms, but the ice had accumulated dissolved organic matter from the seawater. It appears that unlike salt, dissolved organic substances are not excluded from the ice in the freezing process. Analysis shows that the dissolved organic material absorbs enough blue wavelengths from solar light to make the ice appear green.

Chemical evidence shows that platelets (minute flat portions) of ice form in the water and then accrete and stick to the bottom of the ice shelf to form a slush (partially melted snow). The slush is compacted by an unknown mechanism, and solid, bubble-free ice is formed from water high in soluble organic substances. When an iceberg separates from the ice shelf and capsizes, the green ice is exposed.

The Amery Ice Shelf appears to be uniquely suited to the production of green icebergs. Once detached from the ice shelf, these bergs drift in the currents and wind systems surrounding Antarctica and can be found scattered among

Paragraph 1: Icebergs are massive blocks of ice, irregular in shape; they float with only about 12 percent of their mass above the sea surface. They are formed by glaciers—large rivers of ice that begin inland in the snows of Greenland, Antarctica, and Alaska—and move slowly toward the sea. The forward movement, the melting at the base of the glacier where it meets the ocean, and waves and tidal action cause blocks of ice to break off and float out to sea.

1. According to paragraph 1, all of the following are true of icebergs EXCEPT:

- They do not have a regular shape.
- They are formed where glaciers meet the ocean.
- Most of their mass is above the sea surface.
- Waves and tides cause them to break off glaciers.

Paragraph 2: Icebergs are ordinarily blue to white, although they sometimes appear dark or opaque because they carry gravel and bits of rock. They may change color with changing light conditions and cloud cover, glowing pink or gold in the morning or evening light, but this color change is generally related to the low angle of the Sun above the horizon. However, travelers to Antarctica have repeatedly reported seeing green icebergs in the Weddell Sea and, more commonly, close to the Amery Ice Shelf in East Antarctica.

2. According to paragraph 2, what causes icebergs to sometimes appear dark or opaque?

- A heavy cloud cover
- The presence of gravel or bits of rock
- The low angle of the Sun above the horizon
- The presence of large cracks in their surface

Paragraph 2: One explanation for green icebergs attributes their color to an optical illusion when blue ice is illuminated by a near-horizon red Sun, but green icebergs stand out among white and blue icebergs under a great variety of light conditions. Another suggestion is that the color might be related to ice with high levels of metallic compounds, including copper and iron. Recent expeditions have taken ice samples from green icebergs and ice cores—vertical, cylindrical ice samples reaching down to great depths—from the glacial ice shelves along the Antarctic continent. Analyses of these cores and samples provide a different solution to the problem.

3. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- One explanation notes that green icebergs stand out among other icebergs under a great variety of light conditions, but this is attributed to an optical illusion.
- One explanation for the color of green icebergs attributes their color to an optical illusion that occurs when the light from a near-horizon red Sun shines on a blue iceberg.
- One explanation for green icebergs attributes their color to a great variety of light conditions, but green icebergs stand out best among other icebergs when illuminated by a near-horizon red Sun.
- One explanation attributes the color of green icebergs to an optical illusion under special light conditions, but green icebergs appear distinct from other icebergs under a great variety of light conditions.

Paragraph 4: The ice shelf cores, with a total length of 215 meters (705 feet), were long enough to penetrate through glacial ice—which is formed from the compaction of snow and contains air bubbles—and to continue into the clear, bubble-free ice formed from seawater that freezes onto the bottom of the glacial ice. The properties of this clear sea ice were very similar to the ice from the green iceberg. The scientists concluded that green icebergs form when a

two-layer block of shelf ice breaks away and capsizes (turns upside down), exposing the bubble-free shelf ice that was formed from seawater.

4. The word “penetrate” in the passage is closest in meaning to
- collect
 - pierce
 - melt
 - endure
5. According to paragraph 4, how is glacial ice formed?
- By the compaction of snow
 - By the freezing of seawater on the bottom of ice shelves
 - By breaking away from the ice shelf
 - By the capsizing of a two-layer block of shelf ice
6. According to paragraph 4, ice shelf cores helped scientists explain the formation of green icebergs by showing that
- the ice at the bottom of green icebergs is bubble-free ice formed from frozen seawater
 - bubble-free ice is found at the top of the ice shelf
 - glacial ice is lighter and floats better than sea ice
 - the clear sea ice at the bottom of the ice shelf is similar to ice from a green iceberg

Paragraph 5: A green iceberg that stranded just west of the Amery Ice Shelf showed two distinct layers: bubbly blue-white ice and bubble-free green ice separated by a one-meter-long ice layer containing sediments. The green ice portion was textured by seawater erosion. Where cracks were present, the color was light green because of light scattering; where no cracks were present, the color was dark green. No air bubbles were present in the green ice, suggesting that the ice was not formed from the compression of snow but instead from the freezing of seawater. Large concentrations of single-celled organisms with green pigments (coloring substances) occur along the edges of the ice shelves in this region, and the seawater is rich in their decomposing organic material. The green iceberg did not contain large amounts of particles from these organisms, but the ice had accumulated dissolved organic matter from the seawater. It appears that unlike salt, dissolved organic substances are not excluded from the ice in the freezing process. Analysis shows that the dissolved organic material absorbs enough blue wavelengths from solar light to make the ice appear green.

7. Why does the author mention that “The green ice portion was textured by seawater erosion”?
- To explain why cracks in the iceberg appeared light green instead of dark green
 - To suggest that green ice is more easily eroded by seawater than white ice is
 - To support the idea that the green ice had been the bottom layer before capsizing
 - To explain how the air bubbles had been removed from the green ice
8. The word “accumulated” in the passage is closest in meaning to
- collected
 - frozen
 - released
 - covered
9. The word “excluded” in the passage is closest in meaning to

-
- kept out
 - compressed
 - damaged
 - gathered together

Paragraph 6: Chemical evidence shows that platelets (minute flat portions) of ice form in the water and then **accrete** and stick to the bottom of the ice shelf to form a slush (partially melted snow). The slush is compacted by an unknown mechanism, and solid, bubble-free ice is formed from water high in soluble organic substances. When an iceberg separates from the ice shelf and capsizes, the green ice is exposed.

10. The word “**accrete**” in the passage is closest in meaning to

- advance
- transfer
- flatten out
- come together

11. Which of the following is NOT explained in the passage?

- Why blocks of ice break off where glaciers meet the ocean
- Why blocks of shelf ice sometimes capsize after breaking off
- Why green icebergs are commonly produced in some parts of Antarctica
- Why green icebergs contain large amounts of dissolved organic pigments

12. The passage supports which of the following statements about the Amery Ice Shelf?

- The Amery Ice Shelf produces only green icebergs.
- The Amery Ice Shelf produces green icebergs because its ice contains high levels of metallic compounds such as copper and iron.
- The Amery Ice Shelf produces green icebergs because the seawater is rich in a particular kind of soluble organic material.
- No green icebergs are found far from the Amery Ice Shelf.

Paragraph 2: Icebergs are ordinarily blue to white, although they sometimes appear dark or opaque because they carry gravel and bits of rock. They may change color with changing light conditions and cloud cover, glowing pink or gold in the morning or evening light, but this color change is generally related to the low angle of the Sun above the horizon. ■ However, travelers to Antarctica have repeatedly reported seeing green icebergs in the Weddell Sea and, more commonly, close to the Amery Ice Shelf in East Antarctica. ■ One explanation for green icebergs attributes their color to an optical illusion when blue ice is illuminated by a near-horizon red Sun, but green icebergs stand out among white and blue icebergs under a great variety of light conditions. ■ Another suggestion is that the color might be related to ice with high levels of metallic compounds, including copper and iron. ■ Recent expeditions have taken ice samples from green icebergs and ice cores—vertical, cylindrical ice samples reaching down to great depths—from the glacial ice shelves along the Antarctic continent. Analyses of these cores and samples provide a different solution to the problem.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Scientists have differed as to whether icebergs appear green as a result of light conditions or because of something in the ice itself.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some

sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Several suggestions, ranging from light conditions to the presence of metallic compounds, have been offered to explain why some icebergs appear green.

-
-
-

Answer Choices

○Ice cores were used to determine that green icebergs were formed from the compaction of metallic compounds, including copper and iron.

○All ice shelves can produce green icebergs, but the Amery Ice Shelf is especially well suited to do so.

○Green icebergs form when a two layer block of ice breaks away from a glacier and capsizes, exposing the bottom sea ice to view.

○Ice cores and samples revealed that both ice shelves and green icebergs contain a layer of bubbly glacial ice and a layer of bubble-free sea ice.

○Green icebergs are white until they come into contact with seawater containing platelets and soluble organic green pigments.

○In a green iceberg, the sea ice contains large concentrations of organic matter from the seawater.

参考答案:

1. ○3
2. ○2
3. ○4
4. ○2
5. ○1
6. ○4
7. ○3
8. ○1
9. ○1
10. ○4
11. ○2
12. ○3
13. ○2
14. Green icebergs form...
 Ice cores and samples...
 In a green iceberg...

绿色冰山

冰山就是巨大的冰块，它们的形状各不规则；他们在海面上所呈现出来的部分大概只有总量的 **12%**。冰山是由冰川----从格陵兰岛，南极洲，和阿拉斯加的内陆降雪开始积累成为大河中的冰----然后缓慢流入海洋。向前的移动，在进入海洋的时候冰川底部的融化，和波浪与潮汐变化造成了冰块的断裂从而漂浮在海上。

冰山的颜色一般是从蓝到白，虽然有时会因为他们带有砂砾和石块而显得颜色很深或不透明。在不同情况的光和云量下，它们的颜色呈现可能会随之不同，如在早晨和傍晚的阳光下所呈现的耀眼的粉色或金色，但这个颜色变化大致与太阳位于海平面上的低角度有关。不管怎样，总会有到南极洲的旅游者们报告说在 **Weddell Sea** 看到了绿冰山，南极洲东部 **Amery Ice Shelf** 的附近则更为常见。

对于绿冰山的颜色的一个解释是由于纯冰被接近海平面的太阳所照射而造成的错觉，但是绿冰山在很多不同状态的阳光下都能从白色和蓝色冰山区分出来。另一个解释就是，它的颜色可能与冰里面所含高浓度的金属化合物有关，比如铜和铁。进来的探险队从南极洲的冰架上带回了一些绿色冰山和冰核的样本----到达深度的垂直圆柱型的冰的样本。对这些冰核和样本的分析给问题提供了一个不一样的解决方法。

215 米长的冰架核已经足够用来穿透由压缩的雪组成，并含有气泡的流动冰，并随后穿透在流动冰的底部由冻结的海水形成的清透的没有气泡的冰。这个清透的冰的性质与绿冰山上的冰十分相似。科学家总结出，绿冰的构成是在两层的架冰分开并翻转过来时，暴露出的没有气泡的海水冰。

一个在 **Amery Ice Shelf** 西部滞留的绿冰山呈现出了两个明显的层：含有气泡的白蓝色冰，和没有气泡的绿色冰，它们中间是由 **1** 米长的带有沉积物的冰分隔开的。海水的侵蚀决定了绿色冰的质地。由于光的分散，裂痕处的颜色是浅绿的；而没有裂痕的地方是深绿色。绿色冰中是没有气泡的，因为它是由冻结的海水所构成，而不是压缩的雪。沿着这个地区冰架的边缘，可以发现，带有绿色色素的单细胞生物非常多，而且海水里面含有它们丰富的分解有机物质。绿冰山虽没有包含很多这些生物体的微粒，但从海水中所积累的分解有机物质还是很多的。不同于盐，分解有机物质并没有在结冰过程中被排除掉。分析表明，分解的有机物质会从太阳光中吸收足够的蓝波段，从而使冰呈现出绿色。

化学证据表明冰的小盘（微小的平面部分）是在水中构成，然后共生并附着在冰架底部形成一个 **slush**（部分融化的雪）。**Slush** 被一种未知的原理压缩成冰，而这种固体，没有气泡的冰形成于可溶解的有机物质多的水。当冰山从冰架上分离并翻转过来时，绿色冰便呈现出来了。

TPO-10

Chinese Pottery

China has one of the world's oldest continuous civilizations—despite invasions and occasional foreign rule. A country as vast as China with so long-lasting a civilization has a complex social and visual history, within which pottery and porcelain play a major role.

The function and status of ceramics in China varied from dynasty to dynasty, so they may be utilitarian, burial, trade-collectors', or even ritual objects, according to their quality and the era in which they were made. The ceramics fall into three broad types—earthenware, stoneware, and porcelain—for vessels, architectural items such as roof tiles, and modeled objects and figures. In addition, there was an important group of sculptures made for religious use, the majority of which were produced in earthenware.

The earliest ceramics were fired to earthenware temperatures, but as early as the fifteenth century B.C., high-temperature stonewares were being made with glazed surfaces. During the Six Dynasties period (AD 265-589), kilns in north China were producing high-fired ceramics of good quality. Whitewares produced in Hebei and Henan provinces from the seventh to the tenth centuries evolved into the highly prized porcelains of the Song dynasty (AD. 960-1279), long regarded as one of the high points in the history of China's ceramic industry. The tradition of religious sculpture extends over most historical periods but is less clearly delineated than that of stonewares or porcelains, for it embraces the old custom of earthenware burial ceramics with later religious images and architectural ornament. Ceramic products also include lead-glazed tomb models of the Han dynasty, three-color lead-glazed vessels and figures of the Tang dynasty, and Ming three-color temple ornaments, in which the motifs were outlined in a raised trail of slip—as well as the many burial ceramics produced in imitation of vessels made in materials of higher intrinsic value.

Trade between the West and the settled and prosperous Chinese dynasties introduced new forms and different technologies. One of the most far-reaching examples is the impact of the fine ninth-century AD. Chinese porcelain wares imported into the Arab world. So admired were these pieces that they encouraged the development of earthenware made in imitation of porcelain and instigated research into the method of their manufacture. From the Middle East the Chinese acquired a blue pigment—a purified form of cobalt oxide unobtainable at that time in China—that contained only a low level of manganese. Cobalt ores found in China have a high manganese content, which produces a more muted blue-gray color. In the seventeenth century, the trading activities of the Dutch East India Company resulted in vast quantities of decorated Chinese porcelain being brought to Europe, which stimulated and influenced the work of a wide variety of wares, notably Delft. The Chinese themselves adapted many specific vessel forms from the West, such as bottles with long spouts, and designed a range of decorative patterns especially for the European market.

Just as painted designs on Greek pots may seem today to be purely decorative, whereas in fact they were carefully and precisely worked out so that at the time, their meaning was clear, so it is with Chinese pots. To twentieth-century eyes, Chinese pottery may appear merely decorative, yet to the Chinese the form of each object and its adornment had meaning and significance. The dragon represented the emperor, and the phoenix, the

empress; the pomegranate indicated fertility, and a pair of fish, happiness; mandarin ducks stood for wedded bliss; the pine tree, peach, and crane are emblems of long life; and fish leaping from waves indicated success in the civil service examinations. Only when European decorative themes were introduced did these meanings become obscured or even lost.

From early times pots were used in both religious and secular contexts. The imperial court commissioned work and in the Yuan dynasty (A.D. 1279-1368) an imperial ceramic factory was established at Jingdezhen. Pots played an important part in some religious ceremonies. Long and often lyrical descriptions of the different types of ware exist that assist in classifying pots, although these sometimes confuse an already large and complicated picture.

Paragraph 2: The function and status of ceramics in China varied from dynasty to dynasty, so they may be utilitarian, burial, trade-collectors', or even ritual objects, according to their quality and the era in which they were made. The ceramics fall into three broad types—earthenware, stoneware, and porcelain—for vessels, architectural items such as roof tiles, and modeled objects and figures. In addition, there was an important group of sculptures made for religious use, the majority of which were produced in earthenware.

1. The word “status” in the passage is closest in meaning to

- origin
- importance
- quality
- design

2. According to paragraph 2, which of the following is true of Chinese ceramics?

- The function of ceramics remained the same from dynasty to dynasty.
- The use of ceramics as trade objects is better documented than the use of ceramics as ritual objects.
- There was little variation in quality for any type of ceramics over time.
- Some religious sculptures were made using the earthenware type of ceramics.

Paragraph 3: The earliest ceramics were fired to earthenware temperatures, but as early as the fifteenth century B.C., high-temperature stonewares were being made with glazed surfaces. During the Six Dynasties period (AD 265-589), kilns in north China were producing high-fired ceramics of good quality. Whitewares produced in Hebei and Henan provinces from the seventh to the tenth centuries evolved into the highly prized porcelains of the Song dynasty (AD. 960-1279), long regarded as one of the high points in the history of China's ceramic industry. The tradition of religious sculpture extends over most historical periods but is less clearly delineated than that of stonewares or porcelains, for it embraces the old custom of earthenware burial ceramics with later religious images and architectural ornament. Ceramic products also include lead-glazed tomb models of the Han dynasty, three-color lead-glazed vessels and figures of the Tang dynasty, and Ming three-color temple ornaments, in which the motifs were outlined in a raised trail of slip—as well as the many burial ceramics produced in imitation of vessels made in materials of higher intrinsic value.

3. The word “evolve” in the passage is closest in meaning to

- divided
- extended
- developed
- vanished

4. Which of the sentences below best expresses the essential information in the highlighted sentence in the

passage? Incorrect choices change the meaning in important ways or leave out essential information.

- While stonewares and porcelains are found throughout most historical periods, religious sculpture is limited to the ancient period.
- Religious sculpture was created in most periods, but its history is less clear than that of stonewares or porcelains because some old forms continued to be used even when new ones were developed.
- While stonewares and porcelains changed throughout history, religious sculpture remained uniform in form and use.
- The historical development of religious sculpture is relatively unclear because religious sculptures sometimes resemble earthenware architectural ornaments.

5. Paragraph 3 supports all of the following concerning the history of the ceramic industry in China EXCEPT:

- The earliest high-fired ceramics were of poor quality.
- Ceramics produced during the Tang and Ming dynasties sometimes incorporated multiple colors.
- Earthenware ceramics were produced in China before stonewares were.
- The Song dynasty period was notable for the production of high quality porcelain ceramics.

Paragraph 4: Trade between the West and the settled and prosperous Chinese dynasties introduced new forms and different technologies. One of the most far-reaching examples is the impact of the fine ninth-century AD. Chinese porcelain wares imported into the Arab world. So admired were these pieces that they encouraged the development of earthenware made in imitation of porcelain and instigated research into the method of their manufacture. From the Middle East the Chinese acquired a blue pigment—a purified form of cobalt oxide unobtainable at that time in China—that contained only a low level of manganese. Cobalt ores found in China have a high manganese content, which produces a more muted blue-gray color. In the seventeenth century, the trading activities of the Dutch East India Company resulted in vast quantities of decorated Chinese porcelain being brought to Europe, which stimulated and influenced the work of a wide variety of wares, notably Delft. The Chinese themselves adapted many specific vessel forms from the West, such as bottles with long spouts, and designed a range of decorative patterns especially for the European market.

6. The word “instigate” in the passage is closest in meaning to

- improved
- investigated
- narrowed
- caused

7. According to paragraph 4, one consequence of the trade of Chinese ceramics was

- the transfer of a distinctive blue pigment from China to the Middle East
- an immediate change from earthenware production to porcelain production in European countries
- Chinese production of wares made for the European market
- a decreased number of porcelain vessels available on the European market

Paragraph 5: Just as painted designs on Greek pots may seem today to be purely decorative, whereas in fact they were carefully and precisely worked out so that at the time, their meaning was clear, so it is with Chinese pots. To twentieth-century eyes, Chinese pottery may appear merely decorative, yet to the Chinese the form of each object and its adornment had meaning and significance. The dragon represented the emperor, and the phoenix, the empress; the pomegranate indicated fertility, and a pair of fish, happiness; mandarin ducks stood for wedded bliss; the pine tree, peach, and crane are emblems of long life; and fish leaping from waves indicated success in the civil service examinations. Only when European decorative themes were introduced did these meanings become obscured or even lost.

8. The word “whereas” in the passage is closest in meaning to

- while
- previously
- surprisingly
- because

9. In paragraph 5, the author compares the designs on Chinese pots to those on Greek pots in order to

- emphasize that while Chinese pots were decorative, Greek pots were functional
- argue that the designs on Chinese pots had specific meanings and were not just decorative
- argue that twentieth-century scholars are better able to understand these designs than were ancient scholars
- explain how scholars have identified the meaning of specific images on Chinese pots

10. Which of the following is mentioned in paragraph 5 as being symbolically represented on Chinese ceramics?

- Chinese rulers
- love of homeland
- loyalty to friends
- success in trade

11. Paragraph 5 suggests which of the following about the decorations on Chinese pottery?

- They had more importance for aristocrats than for ordinary citizens.
- Their significance may have remained clear had the Chinese not come under foreign influence.
- They contain some of the same images that appear on Greek pots
- Their significance is now as clear to twentieth century observers as it was to the early Chinese.

Paragraph 6: From early times pots were used in both religious and secular contexts. The imperial court commissioned work and in the Yuan dynasty (A.D. 1279-1368) an imperial ceramic factory was established at Jingdezhen. Pots played an important part in some religious ceremonies. Long and often lyrical descriptions of the different types of ware exist that assist in classifying pots, although these sometimes confuse an already large and complicated picture.

12. The word “these” in the passage refers to

- religious ceremonies
- descriptions
- types of ware
- pots

Paragraph 4: Trade between the West and the settled and prosperous Chinese dynasties introduced new forms and different technologies. One of the most far-reaching examples is the impact of the fine ninth-century AD. Chinese porcelain wares imported into the Arab world. ■So admired were these pieces that they encouraged the development of earthenware made in imitation of porcelain and instigated research into the method of their manufacture. ■From the Middle East the Chinese acquired a blue pigment—a purified form of cobalt oxide unobtainable at that time in China—that contained only a low level of manganese. Cobalt ores found in China have a high manganese content, which produces a more muted blue-gray color. ■In the seventeenth century, the trading activities of the Dutch East India Company resulted in vast quantities of decorated Chinese porcelain being brought to Europe, which stimulated and influenced the work of a wide variety of wares, notably Delft. ■The Chinese themselves adapted many specific vessel forms from the West, such as bottles with long spouts, and designed a range of decorative patterns especially for the European market.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Foreign trade was also responsible for certain innovations in coloring.

Where could the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Ceramics have been produced in China for a very long time.

-
-
-

Answer choices

- The Chinese produced earthenware, stoneware, and porcelain pottery and they used their ceramics for a variety of utilitarian, architectural, and ceremonial purposes.
- The shape and decoration of ceramics produced for religious use in China were influenced by Chinese ceramics produced for export.
- As a result of trade relations, Chinese ceramic production changed and Chinese influenced the ceramics production of other countries.
- Chinese burial ceramics have the longest and most varied history of production and were frequently decorated with written texts that help scholars date them.
- Before China had contact with the West, the meaning of various designs used to decorate Chinese ceramics was well understood.
- Ceramics made in imperial factories were used in both religious and non-religious contexts.

参考答案:

1. ○2
2. ○4
3. ○3
4. ○2
5. ○1
6. ○4
7. ○3
- 8.○1
9. ○2
10. ○1
11. ○2
12. ○2
13. ○2
14. The Chinese produced
As a result of trade
Before China had contact

参考译文:

中国的陶瓷

尽管中国曾受到入侵，偶尔被外国统治，但是她仍然拥有世界上最源远流长的文明。中国是一个拥有悠久文明的大国，而陶瓷在其复杂的社会历史以及视觉历史中扮演了极为重要的角色。

在中国，每一个朝代陶瓷的功能和地位都是不同的，所以，根据它们的质量和制作年代的不同，可以是实用器物、陪葬品、贸易收藏品，甚至是礼器。对于容器、瓦片等建筑材料、模仿的物体或人物，陶瓷可以被分为 3 大类：陶器、炆器和瓷器。另外，瓷器中还有很重要的一类就是宗教用途的雕塑，它们多数是陶质的。

尽管最早的陶瓷是在陶器的温度下烧制的，但是早在公元前 15 世纪，就已经产生了上釉的高温炆器。六朝时期（公元 265-589 年），中国北方就有窑炉在生产优质的高温瓷器。从 7 世纪到 10 世纪，河北以及河南省产的白瓷逐渐的演变成为享有盛名的宋代瓷器（公元 960-1279 年）——长久以来被认为是中国陶瓷业历史中的巅峰时期之一。在大部分历史时期中都延续了宗教雕塑的传统，但是没有炆器和瓷器质地的雕塑描绘的那么清晰，因为它包含了一种古老的习俗，就是将刻着新的宗教形象和建筑装饰的陶器作为陪葬品。瓷器制品还包括汉朝的铅釉随葬陶俑，唐朝的三彩铅釉器皿和人物，明朝的以泥釉凸纹展现轮廓的三彩寺庙装饰物以及很多用来模仿用更贵重的材料制成的器皿的陪葬瓷器。

西方国家和繁荣稳定的历代中国之间的贸易促使双方互相引入了新的形式和不同的技术。其中一个意义最为深远的例子是公元 9 世纪出口到阿拉伯世界的精美中国瓷器所带来的影响。阿拉伯人非常仰慕这些瓷器，于是他们鼓励发展陶器以模仿瓷器，并激励人们对生产方法开展研究。中国人从中东获得了一种蓝色的颜料——一种当时在中国还没有的精制氧化钴，其中只含有少量的锰。中国自己的钴矿石含有大量的会产生暗蓝灰色的锰元素。17 世纪，大量的中国装饰类瓷器通过荷兰东印度公司的交易活动而流入欧洲，这刺激和影响大量各式各样的瓷器的生产，特别是代尔夫特。中国人自己改良了很多种来自西方的特殊器皿，比如带有长壶嘴的瓶子，并专门为欧洲市场设计了一系列的装饰性图案。

正如希腊的壶罐上所绘的图案，今天看来也许纯粹是为了装饰用，然而事实上在当时它们都是被精心仔细的制作出来的，它们的意义在当时非常明确，中国的瓷器也是如此。以 20 世纪的眼光来看，中国制造的陶瓷也许仅仅是装饰品，但是对于中国人来说每个物件的形式及它的装饰都有含义和意义。龙代表了皇帝，凤代表了皇后；石榴意味着多子，双鱼意味着幸福；鸳鸯代表了婚姻的幸福美满；松树、桃树以及鹤都是长寿的象征；鱼跃出水面意味着科举考试会高中。但是当欧洲的装饰主题被引进后，这些寓意就变得不再那么流行甚至丢失了。

从很早的时候壶罐就被用于宗教和日常生活中了。朝廷分派了制作工作，并于元朝（公元 1279-1368 年）在景德镇设立了一座官窑。壶罐在一些宗教仪式上也有着重要的地位。壶罐上有很多长篇的关于不同类型的壶罐的并且通常是抒情性的描述可以帮助我们对其进行分类，虽然这些描述有时候使一幅已经大而复杂的画面显得凌乱。

Variations in the Climate

One of the most difficult aspects of deciding whether current climatic events reveal evidence of the impact of human activities is that it is hard to get a measure of what constitutes the natural variability of the climate. We know that over the past millennia the climate has undergone major changes without any significant human intervention. We also know that the global climate system is immensely complicated and that everything is in some way connected, and so the system is capable of fluctuating in unexpected ways. We need therefore to know how much the climate can vary of its own accord in order to interpret with confidence the extent to which recent changes are natural as opposed to being the result of human activities.

Instrumental records do not go back far enough to provide us with reliable measurements of global climatic variability on timescales longer than a century. What we do know is that as we include longer time intervals, the record shows increasing evidence of slow swings in climate between different regimes. To build up a better picture of fluctuations appreciably further back in time requires us to use proxy records.

Over long periods of time, substances whose physical and chemical properties change with the ambient climate at the time can be deposited in a systematic way to provide a continuous record of changes in those properties overtime, sometimes for hundreds or thousands of years. Generally, the layering occurs on an annual basis, hence the observed changes in the records can be dated. Information on temperature, rainfall, and other aspects of the climate that can be inferred from the systematic changes in properties is usually referred to as proxy data. Proxy temperature records have been reconstructed from ice core drilled out of the central Greenland ice cap, calcite shells embedded in layered lake sediments in Western Europe, ocean floor sediment cores from the tropical Atlantic Ocean, ice cores from Peruvian glaciers, and ice cores from eastern Antarctica. While these records provide broadly consistent indications that temperature variations can occur on a global scale, there are nonetheless some intriguing differences, which suggest that the pattern of temperature variations in regional climates can also differ significantly from each other.

What the proxy records make abundantly clear is that there have been significant natural changes in the climate over timescales longer than a few thousand years. Equally striking, however, is the relative stability of the climate in the past 10,000 years (the Holocene period).

To the extent that the coverage of the global climate from these records can provide a measure of its true variability, it should at least indicate how all the natural causes of climate change have combined. These include the chaotic fluctuations of the atmosphere, the slower but equally erratic behavior of the oceans, changes in the land surfaces, and the extent of ice and snow. Also included will be any variations that have arisen from volcanic activity, solar activity, and, possibly, human activities.

One way to estimate how all the various processes leading to climate variability will combine is by using computer models of the global climate. They can do only so much to represent the full complexity of the global climate and hence may give only limited information about natural variability. Studies suggest that to date the variability in computer simulations is considerably smaller than in data obtained from the proxy records.

In addition to the internal variability of the global climate system itself, there is the added factor of external influences, such as volcanoes and solar activity. There is a growing body of opinion that both these physical variations have a measurable impact on the climate. Thus we need to be able to include these in our deliberations. Some current analyses conclude that volcanoes and solar activity explain quite a considerable amount of the observed variability in the period from the seventeenth to the early twentieth centuries, but that they cannot be invoked to explain the rapid

warming in recent decades.

Paragraph 1: One of the most difficult aspects of deciding whether current climatic events reveal evidence of the impact of human activities is that it is hard to get a measure of what constitutes the natural variability of the climate. We know that over the past millennia the climate has undergone major changes without any significant human intervention. We also know that the global climate system is immensely complicated and that everything is in some way connected, and so the system is capable of fluctuating in unexpected ways. We need therefore to know how much the climate can vary of its own accord in order to interpret with confidence the extent to which recent changes are natural as opposed to being the result of human activities.

1. According to paragraph 1, which of the following must we find out in order to determine the impact of human activities upon climate?

- The major changes in climate over the past millennia
- The degree to which the climate varies naturally
- The best method for measuring climatic change
- The millennium when humans began to interfere with the climate

Paragraph 2: Instrumental records do not go back far enough to provide us with reliable measurements of global climatic variability on timescales longer than a century. What we do know is that as we include longer time intervals, the record shows increasing evidence of slow swings in climate between different regimes. To build up a better picture of fluctuations appreciably further back in time requires us to use proxy records.

2. According to paragraph 2, an advantage of proxy records over instrumental records is that

- they are more-reliable measures of climatic variability in the past century
- they provide more-accurate measures of local temperatures
- they provide information on climate fluctuations further back in time
- they reveal information about the human impact on the climate

Paragraph 3: Over long periods of time, substances whose physical and chemical properties change with the ambient climate at the time can be deposited in a systematic way to provide a continuous record of changes in those properties overtime, sometimes for hundreds or thousands of years. Generally, the layering occurs on an annual basis, hence the observed changes in the records can be dated. Information on temperature, rainfall, and other aspects of the climate that can be inferred from the systematic changes in properties is usually referred to as proxy data. Proxy temperature records have been reconstructed from ice core drilled out of the central Greenland ice cap, calcite shells embedded in layered lake sediments in Western Europe, ocean floor sediment cores from the tropical Atlantic Ocean, ice cores from Peruvian glaciers, and ice cores from eastern Antarctica. While these records provide broadly consistent indications that temperature variations can occur on a global scale, there are nonetheless some intriguing differences, which suggest that the pattern of temperature variations in regional climates can also differ significantly from each other.

3. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Because physical and chemical properties of substances are unchanging, they are useful records of climate fluctuations over time.
- For hundreds or thousands of years, people have been observing changes in the chemical and physical properties of substances in order to infer climate change.

-
- Because it takes long periods of time for the climate to change, systematic changes in the properties of substances are difficult to observe.
 - Changes in systematically deposited substances that are affected by climate can indicate climate variations over time.

4. According to paragraph 3, scientists are able to reconstruct proxy temperature records by

- studying regional differences in temperature variations
- studying and dating changes in the properties of substances
- observing changes in present day climate conditions
- inferring past climate shifts from observations of current climatic changes

Paragraph 4: What the proxy records make abundantly clear is that there have been significant natural changes in the climate over timescales longer than a few thousand years. Equally **striking**, however, is the relative stability of the climate in the past 10,000 years (the Holocene period).

5. The word “**striking**” in the passage is closest in meaning to

- noticeable
- confusing
- true
- unlikely

Paragraph 3: Over long periods of time, substances whose physical and chemical properties change with the ambient climate at the time can be deposited in a systematic way to provide a continuous record of changes in those properties overtime, sometimes for hundreds or thousands of years. Generally, the layering occurs on an annual basis, hence the observed changes in the records can be dated. Information on temperature, rainfall, and other aspects of the climate that can be inferred from the systematic changes in properties is usually referred to as proxy data. Proxy temperature records have been reconstructed from ice core drilled out of the central Greenland ice cap, calcite shells embedded in layered lake sediments in Western Europe, ocean floor sediment cores from the tropical Atlantic Ocean, ice cores from Peruvian glaciers, and ice cores from eastern Antarctica. While these records provide broadly consistent indications that temperature variations can occur on a global scale, there are nonetheless some intriguing differences, which suggest that the pattern of temperature variations in regional climates can also differ significantly from each other.

Paragraph 4: What the proxy records make abundantly clear is that there have been significant natural changes in the climate over timescales longer than a few thousand years. Equally striking, however, is the relative stability of the climate in the past 10,000 years (the Holocene period).

6. According to paragraphs 3 and 4, proxy data have suggested all of the following about the climate EXCEPT:

- Regional climates may change overtime.
- The climate has changed very little in the past 10,000 years.
- Global temperatures vary more than regional temperatures.
- Important natural changes in climate have occurred over large timescales.

Paragraph 5: To the extent that the coverage of the global climate from these records can provide a measure of its true variability, it should at least indicate how all the natural causes of climate change have combined. These include the chaotic fluctuations of the atmosphere, the slower but equally **erratic** behavior of the oceans, changes in the land surfaces, and the extent of ice and snow. Also included will be any variations that have arisen from volcanic activity, solar activity, and, possibly, human activities.

7. The word “erratic” in the passage is closest in meaning to

- dramatic
- important
- unpredictable
- common

8. All of the following are mentioned in paragraph 5 as natural causes of climate change EXCEPT

- atmospheric changes
- the slow movement of landmasses
- fluctuations in the amount of ice and snow
- changes in ocean activity

Paragraph 6: One way to estimate how all the various processes leading to climate variability will combine is by using computer models of the global climate. They can do only so much to represent the full complexity of the global climate and hence may give only limited information about natural variability. Studies suggest that to date the variability in computer simulations is considerably smaller than in data obtained from the proxy records.

9. According to paragraph 6, which of the following is true of computer models of the global climate?

- The information they produce is still limited.
- They are currently most useful in understanding past climatic behaviors.
- They allow researchers to interpret the data obtained from proxy records.
- They do not provide information about regional climates.

Paragraph 7: In addition to the internal variability of the global climate system itself, there is the added factor of external influences, such as volcanoes and solar activity. There is a growing body of opinion that both these physical variations have a measurable impact on the climate. Thus we need to be able to include these in our deliberations. Some current analyses conclude that volcanoes and solar activity explain quite a considerable amount of the observed variability in the period from the seventeenth to the early twentieth centuries, but that they cannot be invoked to explain the rapid warming in recent decades.

10. The word “deliberations” in the passage is closest in meaning to

- records
- discussions
- results
- variations

11. The word “invoked” in the passage is closest in meaning to

- demonstrated
- called upon
- supported
- expected

12. What is the author's purpose in presenting the information in paragraph 7?

- To compare the influence of volcanoes and solar activity on climate variability with the influence of factors external to the global climate system
- To indicate that there are other types of influences on climate variability in addition to those previously discussed
- To explain how external influences on climate variability differ from internal influences

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- To argue that the rapid warming of Earth in recent decades cannot be explained

Paragraph 7: In addition to the internal variability of the global climate system itself, there is the added factor of external influences, such as volcanoes and solar activity. ■ There is a growing body of opinion that both these physical variations have a measurable impact on the climate. ■ Thus we need to be able to include these in our deliberations. ■ Some current analyses conclude that volcanoes and solar activity explain quite a considerable amount of the observed variability in the period from the seventeenth to the early twentieth centuries, but that they cannot be invoked to explain the rapid warming in recent decades. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Indeed, the contribution of volcanoes and solar activity would more likely have been to actually reduce the rate of warming slightly.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

A number of different and complex factors influence changes in the global climate over long periods of time.

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Answer choices

- In the absence of instrumental records, proxy data allow scientists to infer information about past climates.
- Scientists see a consistent pattern in the global temperature variations that have occurred in the past.
- Computer models are used to estimate how the different causes of climate variability combine to account for the climate variability that occurs.
- Scientists have successfully separated natural climate variation from changes related to human activities.
- Scientists believe that activities outside the global climate system, such as volcanoes and solar activity may have significant effects on the system.
- Scientists have concluded that human activity accounts for the rapid global warming in recent decades.

参考答案:

1. ○2
2. ○3
3. ○4
4. ○2
5. ○1
6. ○3
7. ○3
8. ○2
9. ○1
10. ○2
11. ○2
12. ○2
13. ○4
14. In the absence of
Computer models are
Scientists believe that

气候变化

确定现在的气候事件是否证明人类活动影响的最大困难之一在于很难找到一种方法来确定是什么构成了气候的自然可变性。我们知道在过去的几千年里，气候在没有重大人类干预下也经历了主要变化。我们还知道全球气候系统是非常复杂的，所有因素都在某些方面互相联系，因此这个系统以意想不到的方法变化着。因此，我们需要知道气候在多大程度上是自然变化的，以便于确切解释出最近的变化在多大程度上是自然的，或相反是人类活动的结果。

仪器记录不能追溯回那么久远以提供给我们长于一个世纪的时间标准下的全球气候可变性的可信测量方法。我们所确知的就是当我们想包括更长久时间跨度，记录揭示了在不同制度中缓慢的摇摆的更多的证据。为了建立一个略久远变化的更好的变化描述，需要我们使用替代记录。

经过很长一段时间，物理和化学特征随着当时周围的气候变化的物质将会以系统的方法沉淀，这可以提供那些特征在超长时间里变化的连续记录，这个超长时间有时可达几百年或几千年。通常，分层堆积是每年发生的，因此在记录中可观察的变化可以用来确定日期。关于温度，降雨和气候的其他方面的信息通常都是指替代数据，这些信息可以从这种特征的系统变化中推断出来。替代温度记录已被重建通过：钻取自格陵兰冰帽中部的冰核，西欧深嵌在分层湖底沉积物中的方解石壳，取自热带大西洋的海底沉积物核，取自秘鲁冰河的冰核，和取自东南极洲的冰核。尽管这新记录提供了广范一致的迹象指出温度变化可在全球范围内发生，但仍存在引人发问的差异，这些差异表示区域性气候的温度变化方式可以如此不同。

代理记录所充分解释的是在长于几千年的时间跨度里存在着显著的自然气候变化。但同样令人惊讶的是在过去的一万年（全新世）中气候的相对稳定。【*全新世：在地质年表上第四纪后两世从更新世结束一直到现在岩石时期的泥沙时期——译者】

这些记录中对全球气候的覆盖度已经达到了可以提供气候可变性的方法的程度，它应该至少揭示所有引起气候变化的自然原因是怎样结合的。这些原因包括混乱的大气波动，相对较慢但相当混乱的海洋活动，地表变化和冰雪的覆盖度。还包括任何火山活动、太阳活动将会引起的变化。或许也包括人类活动引起的变化。

一种可估计所有这些导致气候变化的不同过程是如何结合的方法就是使用计算机全球气候模型。它们可以做的只有这么多来描绘全球气候的全部复杂性，因此只能提供自然变化的有限信息。研究表明迄今为止计算机模拟的可变性比取自代理记录的数据少得多。

除全球气候系统本身的内部变化之外，还存在其他外部影响的因素，如火山或太阳活动。有越来越多的观点认为这两种物理变化对气候有着可测量的影响。因此我们需要能够考虑到这些。一些现在的分析断定火山和太阳活动解释了自 17 世纪到 20 世纪早期的相当多的可观察到的变化但他们不能用以揭示最近几十年的迅速变暖。

Seventeenth-Century European Economic Growth

In the late sixteenth century and into the seventeenth, Europe continued the growth that had lifted it out of the relatively less prosperous medieval period (from the mid 400s to the late 1400s). Among the key factors behind this growth were increased agricultural productivity and an expansion of trade.

Populations cannot grow unless the rural economy can produce enough additional food to feed more people. During the sixteenth century, farmers brought more land into cultivation at the expense of forests and fens (low-lying wetlands). Dutch land reclamation in the Netherlands in the sixteenth and seventeenth centuries provides the most spectacular example of the expansion of farmland: the Dutch reclaimed more than 36,000 acres from 1590 to 1615 alone.

Much of the potential for European economic development lay in what at first glance would seem to have been only sleepy villages. Such villages, however, generally lay in regions of relatively advanced agricultural production, permitting not only the survival of peasants but also the accumulation of an agricultural surplus for investment. They had access to urban merchants, markets, and trade routes.

Increased agricultural production in turn facilitated rural industry, an intrinsic part of the expansion of industry. Woolens and textile manufacturers, in particular, utilized rural cottage (in-home) production, which took advantage of cheap and plentiful rural labor. In the German states, the ravages of the Thirty Years' War (1618-1648) further moved textile production into the countryside. Members of poor peasant families spun or wove cloth and linens at home for scant remuneration in an attempt to supplement meager family income.

More extended trading networks also helped develop Europe's economy in this period. English and Dutch ships carrying rye from the Baltic states reached Spain and Portugal. Population growth generated an expansion of small-scale manufacturing, particularly of handicrafts, textiles, and metal production in England, Flanders, parts of northern Italy, the southwestern German states, and parts of Spain. Only iron smelting and mining required marshaling a significant amount of capital (wealth invested to create more wealth).

The development of banking and other financial services contributed to the expansion of trade. By the middle of the sixteenth century, financiers and traders commonly accepted bills of exchange in place of gold or silver for other goods. Bills of exchange, which had their origins in medieval Italy, were promissory notes (written promises to pay a specified amount of money by a certain date) that could be sold to third parties. In this way, they provided credit. At mid-century, an Antwerp financier only slightly exaggerated when he claimed, "One can no more trade without bills of exchange than sail without water." Merchants no longer had to carry gold and silver over long, dangerous journeys. An Amsterdam merchant purchasing soap from a merchant in Marseille could go to an exchanger and pay the exchanger the equivalent sum in guilders, the Dutch currency. The exchanger would then send a bill of exchange to a colleague in Marseille, authorizing the colleague to pay the Marseille merchant in the merchant's own currency after the actual exchange of goods had taken place.

Bills of exchange contributed to the development of banks, as exchangers began to provide loans. Not until the eighteenth century, however, did such banks as the Bank of Amsterdam and the Bank of England begin to provide capital for business investment. Their principal function was to provide funds for the state.

The rapid expansion in international trade also benefitted from an infusion of capital, stemming largely from gold and silver brought by Spanish vessels from the Americas. This capital financed the production of goods, storage, trade,

and even credit across Europe and overseas. Moreover an increased credit supply was generated by investments and loans by bankers and wealthy merchants to states and by joint-stock partnerships—an English innovation (the first major company began in 1600). Unlike short-term financial cooperation between investors for a single commercial undertaking, joint-stock companies provided permanent funding of capital by drawing on the investments of merchants and other investors who purchased shares in the company.

Paragraph 1: In the late sixteenth century and into the seventeenth, Europe continued the growth that had lifted it out of the relatively less prosperous medieval period (from the mid 400s to the late 1400s). Among the **key** factors behind this growth were increased agricultural productivity and an expansion of trade.

1. According to paragraph 1, what was true of Europe during the medieval period?

- Agricultural productivity declined.
- There was relatively little economic growth.
- The general level of prosperity declined.
- Foreign trade began to play an important role in the economy.

2. The word **key** in the passage is closest in meaning to

- historical
- many
- important
- hidden

Paragraph 2: Populations cannot grow unless the rural economy can produce enough additional food to feed more people. During the sixteenth century, farmers brought more land into cultivation at the expense of forests and fens (low-lying wetlands). Dutch land reclamation in the Netherlands in the sixteenth and seventeenth centuries provides the most spectacular example of the expansion of farmland: the Dutch reclaimed more than 36,000 acres from 1590 to 1615 alone.

3. According to paragraph 2, one effect of the desire to increase food production was that

- land was cultivated in a different way
- more farmers were needed
- the rural economy was weakened
- forests and wetlands were used for farming

Paragraph 3: Much of the potential for European economic development lay in what at first glance would seem to have been only sleepy villages. Such villages, however, generally lay in regions of relatively advanced agricultural production, permitting not only the survival of peasants but also the accumulation of an agricultural surplus for investment. They had access to urban merchants, markets, and trade routes.

4. According to paragraph 3, what was one reason villages had such great economic potential?

- Villages were located in regions where agricultural production was relatively advanced.
- Villages were relatively small in population and size compared with urban areas.
- Some village inhabitants made investments in industrial development.
- Village inhabitants established markets within their villages.

Paragraph 4: Increased agricultural production in turn facilitated rural industry, an intrinsic part of the

expansion of industry. Woolens and textile manufacturers, in particular, utilized rural cottage (in-home) production, which took advantage of cheap and plentiful rural labor. In the German states, the ravages of the Thirty Years' War (1618-1648) further moved textile production into the countryside. Members of poor peasant families spun or wove cloth and linens at home for scant remuneration in an attempt to supplement meager family income.

5. Paragraph 4 supports the idea that increased agricultural production was important for the expansion of industry primarily because it

- increased the number of available workers in rural areas
- provided new types of raw materials for use by industry
- resulted in an improvement in the health of the rural cottage workers used by manufacturers
- helped repair some of the ravages of the Thirty Years' War

6. The word "meager" in the passage is closest in meaning to

- very necessary
- very low
- traditional
- primary

Paragraph 5: More extended trading networks also helped develop Europe's economy in this period. English and Dutch ships carrying rye from the Baltic states reached Spain and Portugal. Population growth generated an expansion of small-scale manufacturing, particularly of handicrafts, textiles, and metal production in England, Flanders, parts of northern Italy, the southwestern German states, and parts of Spain. Only iron smelting and mining required marshaling a significant amount of capital (wealth invested to create more wealth).

7. Why does the author mention that "English and Dutch ships carrying rye from the Baltic states reached Spain and Portugal"?

- To suggest that England and the Netherlands were the two most important trading nations in seventeenth-century Europe
- To suggest how extensive trading relations were
- To contrast the importance of agricultural products with manufactured products
- To argue that shipping introduced a range of new products

Paragraph 6: The development of banking and other financial services contributed to the expansion of trade. By the middle of the sixteenth century, financiers and traders commonly accepted bills of exchange in place of gold or silver for other goods. Bills of exchange, which had their origins in medieval Italy, were promissory notes (written promises to pay a specified amount of money by a certain date) that could be sold to third parties. In this way, they provided credit. At mid-century, an Antwerp financier only slightly exaggerated when he claimed, "One can no more trade without bills of exchange than sail without water." Merchants no longer had to carry gold and silver over long, dangerous journeys. An Amsterdam merchant purchasing soap from a merchant in Marseille could go to an exchanger and pay the exchanger the equivalent sum in guilders, the Dutch currency. The exchanger would then send a bill of exchange to a colleague in Marseille, authorizing the colleague to pay the Marseille merchant in the merchant's own currency after the actual exchange of goods had taken place.

8. By including the quotation in paragraph 6 by the financier from Antwerp, the author is emphasizing that

- sailing was an important aspect of the economy
- increasing the number of water routes made trade possible
- bills of exchange were necessary for successful trading

-
- financiers often exaggerated the need for bills of exchange

9. According to paragraph 6, merchants were able to avoid the risk of carrying large amounts of gold and silver by

- using third parties in Marseille to buy goods for them
- doing all their business by using Dutch currency
- paying for their purchases through bills of exchange
- waiting to pay for goods until the goods had been delivered

Paragraph 7: Bills of exchange contributed to the development of banks, as exchangers began to provide loans. Not until the eighteenth century, however, did such banks as the Bank of Amsterdam and the Bank of England begin to provide capital for business investment. Their principal function was to provide funds for the state.

10. According to paragraph 7, until the eighteenth century, it was the principal function of which of the following to provide funds for the state?

- Bills of exchange
- Exchangers who took loans
- Banks
- Business investment

Paragraph 8: The rapid expansion in international trade also benefitted from an infusion of capital, stemming largely from gold and silver brought by Spanish vessels from the Americas. This capital financed the production of goods, storage, trade, and even credit across Europe and overseas. Moreover an increased credit supply was generated by investments and loans by bankers and wealthy merchants to states and by joint-stock partnerships—an English innovation (the first major company began in 1600). Unlike short-term financial cooperation between investors for a single commercial undertaking, joint-stock companies provided permanent funding of capital by drawing on the investments of merchants and other investors who purchased shares in the company.

11. The phrase “an English innovation” in the passage is closest in meaning to

- a new development introduced by the English
- an arrangement found only in England
- a type of agreement negotiated in English
- a type of partnership based on English law

12. According to paragraph 8, each of the following was a source of funds used to finance economic expansion EXCEPT

- groups of investors engaged in short-term financial cooperation
- the state
- wealthy merchants
- joint-stock companies

Paragraph 6: The development of banking and other financial services contributed to the expansion of trade. By the middle of the sixteenth century, financiers and traders commonly accepted bills of exchange in place of gold or silver for other goods. Bills of exchange, which had their origins in medieval Italy, were promissory notes (written promises to pay a specified amount of money by a certain date) that could be sold to third parties. In this way, they provided credit. ■At mid-century, an Antwerp financier only slightly exaggerated when he claimed, “One can no more trade without bills of exchange than sail without water.” ■Merchants no longer had to carry gold and silver over long, dangerous journeys. ■An Amsterdam merchant purchasing soap from a merchant in Marseille could go to an exchanger and pay the exchanger the equivalent sum in guilders, the Dutch currency. ■The exchanger would then send

a bill of exchange to a colleague in Marseille, authorizing the colleague to pay the Marseille merchant in the merchant's own currency after the actual exchange of goods had taken place.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

They could also avoid having to identify and assess the value of a wide variety of coins issued in many different places.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

In late sixteenth-and early seventeenth-century Europe, increased agricultural production and the expansion of trade were important in economic growth.

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-
-

Answer choices

- Bringing more land under cultivation produced enough food to create surpluses for trade and investment as well as for supporting the larger populations that led to the growth of rural industry.
- Most rural villages established an arrangement with a nearby urban center that enabled villagers to take advantage of urban markets to sell any handicrafts they produced.
- Increases in population and the expansion of trade led to increased manufacturing, much of it small-scale in character but some requiring significant capital investment.
- Increased capital was required for the production of goods, for storage, for trade, and for the provision of credit throughout of Europe as well as distant markets overseas.
- Bills of exchange were invented in medieval Italy but became less important as banks began to provide loans for merchants.
- The expansion of trade was facilitated by developments in banking and financial services and benefitted from the huge influx of capital in the form of gold silver from the Americas.

参考答案:

1. ○2
2. ○3
3. ○4
4. ○1
5. ○1
6. ○2
7. ○2
8. ○3
9. ○3
10. ○3
11. ○1
12. ○2
13. ○3
14. Bringing more land...
Increases in population...
The expansion of...

17 世纪的欧洲经济增长

在十六和十七世纪之交，欧洲经济保持着脱离中世纪（公元 5 世纪中至公元 15 世纪末）衰微的势头继续增长。拉动经济增长最关键的因素是农业生产力的提高和贸易规模的扩大。

如果乡村经济不能生产足够的食物的话，人口增长就不可能。在十六世纪的时候，农民们砍伐森林，开发湿地来扩大耕地面积。荷兰的土地开发利用无疑是十六到十七世纪中最引人注目的：单单是在 1590 年到 1615 年间，荷兰就开发利用了 36000 多英亩的土地。

欧洲经济增长的巨大潜力是在那些第一眼看过去好像沉睡着的乡镇。这些乡镇大多地处农业相对发达的地区，在这儿，不仅农民得以生存，可用于投资的富余农产品也得以积累。这些乡镇邻近城市的商人，市场以及贸易线路。

农业的发展反过来促进了工业中的一份子——农村工业的发展。尤其是羊毛和纺织制造商们，他们利用农村大量廉价的劳动力来进行工场制的生产。在德国，由“三十年战争”所造成的破坏进一步促使纺织业向乡村迁移。为了补贴本已经微薄的家庭收入，贫困潦倒的农民们通过在家纺织衣料或亚麻来换取少量的报酬。

扩大的贸易网络也促进了这段时期欧洲经济的增长。英国和荷兰的商船从波罗的海各国带黑麦到西班牙和葡萄牙来卖。在英国，佛南德斯，意大利北部，德国西南部和西班牙部分地区，人口的增长促进了小规模手工业的发展，尤其是手工艺品，纺织品和金属制品。

银行和其他金融服务促进了贸易的发展。到十六世纪中叶，从事金融和贸易的人员已经基本接受了使用汇票取代金银进行交易。始于中世纪意大利的汇票是一种可以和第三方进行交易的期票（其上注明在规定时间内支付特定数额的钱）。就这样，这些汇票具有了信用。在这个世纪的中期，一位安特卫普的金融从业人员并没有过分夸张地说：“缺少了汇票，贸易根本就不可能进行下去，比没有水的航行还不可能。”商人就此再也不用携带金银踏上漫长危险的旅途了。一位向马赛商人购买肥皂的阿姆斯特丹商人可以找到一位兑换人，然后付给那位兑换人等值的荷兰货币——荷兰盾。那位兑换方其后将会给他在马赛的同事寄去汇票，凭借此汇票，当货物交易完成后，马赛的兑换人就会以卖家本国的货币支付给卖家相应的钱。

随着兑换人开始提供贷款服务，汇票对于银行的发展起到了促进作用。然而，直到十八世纪，诸如阿姆斯特丹银行和英格兰银行才开始商业投资贷款业务。它们的首要功能是为政府提供资金。

由西班牙商船从美洲带来的金银成为了促进国际贸易快速发展的资本注入。这些资本资助了商品的生产，存储，交易，甚至是全欧洲乃至海外的贷款。不仅如此，投资，政府向银行家和商人的借贷以及一项英国的革新——股份制公司（第一家主要的股份制公司始于 1600 年）都增加了贷款的供应。与由投资家组成的以单个商业项目为目的的短期财团不同，股份制公司通过商人和其他投资者购买公司股份所带来的投资提供长期的资金筹集。

Ancient Egyptian Sculpture

In order to understand ancient Egyptian art, it is vital to know as much as possible of the elite Egyptians' view of the world and the functions and contexts of the art produced for them. Without this knowledge we can appreciate only the formal content of Egyptian art, and we will fail to understand why it was produced or the concepts that shaped it and caused it to adopt its distinctive forms. In fact, a lack of understanding concerning the purposes of Egyptian art has often led it to be compared unfavorably with the art of other cultures: Why did the Egyptians not develop sculpture in which the body turned and twisted through space like classical Greek statuary? Why do the artists seem to get left and right confused? And why did they not discover the geometric perspective as European artists did in the Renaissance? The answer to such questions has nothing to do with a lack of skill or imagination on the part of Egyptian artists and everything to do with the purposes for which they were producing their art.

The majority of three-dimensional representations, whether standing, seated, or kneeling, exhibit what is called frontality: they face straight ahead, neither twisting nor turning. When such statues are viewed in isolation, out of their original context and without knowledge of their function, it is easy to criticize them for their rigid attitudes that remained unchanged for three thousand years. Frontality is, however, directly related to the functions of Egyptian statuary and the contexts in which the statues were set up. Statues were created not for their decorative effect but to play a primary role in the cults of the gods, the king, and the dead. They were designed to be put in places where these beings could manifest themselves in order to be the recipients of ritual actions. Thus it made sense to show the statue looking ahead at what was happening in front of it, so that the living performer of the ritual could interact with the divine or deceased recipient. Very often such statues were enclosed in rectangular shrines or wall niches whose only opening was at the front, making it natural for the statue to display frontality. Other statues were designed to be placed within an architectural setting, for instance, in front of the monumental entrance gateways to temples known as pylons, or in pillared courts, where they would be placed against or between pillars: their frontality worked perfectly within the architectural context.

Statues were normally made of stone, wood, or metal. Stone statues were worked from single rectangular blocks of material and retained the compactness of the original shape. The stone between the arms and the body and between the legs in standing figures or the legs and the seat in seated ones was not normally cut away. From a practical aspect this protected the figures against breakage and psychologically gives the images a sense of strength and power, usually enhanced by a supporting back pillar. By contrast, wooden statues were carved from several pieces of wood that were pegged together to form the finished work, and metal statues were either made by wrapping sheet metal around a wooden core or cast by the lost wax process. The arms could be held away from the body and carry separate items in their hands; there is no back pillar. The effect is altogether lighter and freer than that achieved in stone, but because both perform the same function, formal wooden and metal statues still display frontality.

Apart from statues representing deities, kings, and named members of the elite that can be called formal, there is another group of three-dimensional representations that depicts generic figures, frequently servants, from the nonelite population. The function of these is quite different. Many are made to be put in the tombs of the elite in order to serve the tomb owners in the afterlife. Unlike formal statues that are limited to static poses of standing, sitting, and kneeling, these figures depict a wide range of actions, such as grinding grain, baking

bread, producing pots, and making music, and they are shown in appropriate poses, bending and squatting as they carry out their tasks.

Paragraph 1: In order to understand ancient Egyptian art, it is vital to know as much as possible of the elite Egyptians' view of the world and the functions and contexts of the art produced for them. Without this knowledge we can appreciate only the formal content of Egyptian art, and we will fail to understand why it was produced or the concepts that shaped it and caused it to adopt its distinctive forms. In fact, a lack of understanding concerning the purposes of Egyptian art has often led it to be compared unfavorably with the art of other cultures: Why did the Egyptians not develop sculpture in which the body turned and twisted through space like classical Greek statuary? Why do the artists seem to get left and right confused? And why did they not discover the geometric perspective as European artists did in the Renaissance? The answer to such questions has nothing to do with a lack of skill or imagination on the part of Egyptian artists and everything to do with the purposes for which they were producing their art.

1. The word "vital" in the passage is closest in meaning to
 - attractive
 - essential
 - usual
 - practical
2. Paragraph 1 suggests that one reason Egyptian art is viewed less favorably than other art is that Egyptian art lacks
 - a realistic sense of human body proportion
 - a focus on distinctive forms of varying sizes
 - the originality of European art
 - the capacity to show the human body in motion
3. In paragraph 1, the author mentions all of the following as necessary in appreciating Egyptian art EXCEPT an understanding of
 - the reasons why the art was made
 - the nature of aristocratic Egyptian beliefs
 - the influences of Egyptian art on later art such as classical Greek art
 - how the art was used

Paragraph 2: The majority of three-dimensional representations, whether standing, seated, or kneeling, exhibit what is called frontality: they face straight ahead, neither twisting nor turning. When such statues are viewed in isolation, out of their original context and without knowledge of their function, it is easy to criticize them for their rigid attitudes that remained unchanged for three thousand years. Frontality is, however, directly related to the functions of Egyptian statuary and the contexts in which the statues were set up. Statues were created not for their decorative effect but to play a primary role in the cults of the gods, the king, and the dead. They were designed to be put in places where these beings could manifest themselves in order to be the recipients of ritual actions. Thus it made sense to show the statue looking ahead at what was happening in front of it, so that the living performer of the ritual could interact with the divine or deceased recipient. Very often such statues were enclosed in rectangular shrines or wall niches whose only opening was at the front, making it natural for the statue to display frontality. Other statues were designed to be placed within an architectural setting, for instance, in front of the monumental entrance gateways to temples known as pylons, or in pillared courts, where they would be placed against or between pillars: their frontality worked perfectly within the architectural context.

4. According to paragraph 2, why are Egyptian statues portrayed frontality?

- To create a psychological effect of distance and isolation
- To allow them to fulfill their important role in ceremonies of Egyptian life
- To provide a contrast to statues with a decorative function
- To suggest the rigid, unchanging Egyptian philosophical attitudes

5. The word “context” in the passage is closest in meaning to

- connection
- influence
- environment
- requirement

6. The author mentions “an architectural setting” in the passage in order to

- suggest that architecture was as important as sculpture to Egyptian artists
- offer a further explanation for the frontal pose of Egyptian statues
- explain how the display of statues replaced other forms of architectural decoration
- illustrate the religious function of Egyptian statues

7. The word “they” in the passage refers to

- statues
- gateways
- temples
- pillared courts

Paragraph 3: Statues were normally made of stone, wood, or metal. Stone statues were worked from single rectangular blocks of material and retained the compactness of the original shape. The stone between the arms and the body and between the legs in standing figures or the legs and the seat in seated ones was not normally cut away. From a practical aspect this protected the figures against breakage and psychologically gives the images a sense of strength and power, usually enhanced by a supporting back pillar. By contrast, wooden statues were carved from several pieces of wood that were pegged together to form the finished work, and metal statues were either made by wrapping sheet metal around a wooden core or cast by the lost wax process. The arms could be held away from the body and carry separate items in their hands; there is no back pillar. The effect is altogether lighter and freer than that achieved in stone, but because both perform the same function, formal wooden and metal statues still display frontality.

8. According to paragraph 3, why were certain areas of a stone statue left uncarved?

- To prevent damage by providing physical stability
- To emphasize that the material was as important as the figure itself
- To emphasize that the figure was not meant to be a real human being
- To provide another artist with the chance to finish the carving

9. The word “core” in the passage is closest in meaning to

- material
- layer
- center
- frame

10. According to paragraph 3, which of the following statements about wooden statues is true?

- Wooden statues were usually larger than stone statues.
- Wooden statues were made from a single piece of wood.
- Wooden statues contained pieces of metal or stone attached to the front.
- Wooden statues had a different effect on the viewer than stone statues.

Paragraph 4: Apart from statues representing deities, kings, and named members of the elite that can be called formal, there is another group of three-dimensional representations that **depicts** generic figures, frequently servants, from the nonelite population. The function of these is quite different. Many are made to be put in the tombs of the elite in order to serve the tomb owners in the afterlife. Unlike formal statues that are limited to static poses of standing, sitting, and kneeling, these figures depict a wide range of actions, such as grinding grain, baking bread, producing pots, and making music, and they are shown in appropriate poses, bending and squatting as they carry out their tasks.

11. The word **depicts** in the passage is closest in meaning to

- imagines
- classifies
- elevates
- portrays

12. According to paragraph 4, what is the difference between statues that represent the Egyptian elite and statues that represent the nonelite classes?

- Statues of the elite are included in tombs, but statues of the nonelite are not.
- Statues of the elite are in motionless poses, while statues of the nonelite are in active poses.
- Statues of the elite are shown standing, while statues of the nonelite are shown sitting or kneeling.
- Statues of the elite serve an important function, while statues of the nonelite are decorative.

Paragraph 4: Apart from statues representing deities, kings, and named members of the elite that can be called formal, there is another group of three-dimensional representations that depicts generic figures, frequently servants, from the nonelite population. ■The function of these is quite different. ■Many are made to be put in the tombs of the elite in order to serve the tomb owners in the afterlife. ■Unlike formal statues that are limited to static poses of standing, sitting, and kneeling, these figures depict a wide range of actions, such as grinding grain, baking bread, producing pots, and making music, and they are shown in appropriate poses, bending and squatting as they carry out their tasks. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

In fact, it is the action and not the figure itself that is important.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

The distinctive look of ancient Egyptian sculpture was determined largely by its function.

-
-

●

Answer Choices

- The twisted forms of Egyptian statues indicate their importance in ritual actions.
- The reason Egyptian statues are motionless is linked to their central role in cultural rituals.
- Stone, wood, and metal statues all display the feature of frontality.
- Statues were more often designed to be viewed in isolation rather than placed within buildings.
- The contrasting poses used in statues of elite and nonelite Egyptians reveal their difference in social status.
- Although the appearances of formal and generic statues differ, they share the same function.

参考答案:

1. ○2
2. ○4
3. ○3
4. ○2
5. ○3
6. ○2
7. ○1
- 8.○1
9. ○3
10. ○4
11. ○4
12. ○2
13. ○4
14. The reason Egyptian
Stone, wood, and
The contrasting poses

古埃及雕塑

为了能深入理解古埃及艺术，极为重要的一点是要尽可能多地了解其精英阶层的世界观以及当时艺术创造的功能和背景。若是没有这些认识，我们只能窥探到古埃及艺术的外在情境而无法理解它们创造出来的目的和所秉持的理念，也无法得知其采用的独特艺术形式的原因。事实上，正是因为人们缺乏对这些根本意义的了解，让古埃及文化艺术在与其他艺术进行对比时往往遭到质疑：为什么古埃及的雕塑作品不像古希腊的经典作品那样，在空间上进行弯曲和旋转？为什么那些艺术家看上去似乎都左右不分？又是为什么，在那些艺术作品里，完全没有体现过文艺复兴时期欧洲艺术里普遍采用的几何透视？然而，这些问题的答案完全不能说明古埃及的艺术家技艺不佳或者缺乏想象力，而恰恰体现了他们创造这些艺术的意义所在。

在大部分立体三维的雕像中，无论是站着，坐着抑或是跪着的，都体现着一种成为“正面描绘”的手法：它们往往直面前方，从不弯曲或翻转。如果脱离对其原始情境的了解和功能作用的认识这样单独看去，你将会对它们三千年不变的僵硬姿态发出责难。然而事实上，这种“正面描绘”的展示手法与古埃及雕塑的功能和创造背景有着密切的联系。当时，雕塑被创造出来不仅仅作为装饰，更重要的是应用于对神灵、国王和逝者的祭祀典礼上。它们被特地放置着，使那些接受膜拜的神灵和人物得以显现，能够更直接地观看到整个仪式的表演，并能与表演者互通心灵，传达神意。这些雕塑通常被放置在只有正面开口的矩形神龛或者壁龛中，这样也使得这些作品必须通过正面展现。有些雕塑也被放置在建筑系列中，比如说，塔门（神殿通道入口的纪念碑）的正前方，和支柱结构法庭中的支柱对面或者两柱之间——正是这种正面展示方式让这些雕塑都与周围的建筑环境相得益彰。

这些雕塑通常是由石头，木材和金属做成的。石制雕像是用长方形的石料制成，并且保持着原有的形状和比例。站姿雕塑的身体与胳膊之间、两腿之间的石料或者是坐姿石像的大腿与座位之间的石料通常不会去掉。从实际的外形来看通常石像会在背部增加一个支撑柱已达到保护石像的外形以免出现断裂并且在心理上展现并且增强一种力量与权利的感觉。与之相比，木质雕像是把许多块木头钉在一起再进行雕刻而成的，金属雕塑是在木质的内里外涂上一层薄薄的金属，或是再用蜡抛光。手臂可以离开身体并且保持拿在手里的东西与手之间相隔离。它们也没有背部支柱。效果相比于石质雕塑更亮表述也更自如。但是因为都是用于相同的用途，木质的和金属的雕塑依旧是正面描绘的表现形式。

除去为神灵，国王和有记载的贵族成员所塑的雕像会有特定的外形，其他的非贵族成员中和频繁出现的仆人都是用通用的一般化外表来描绘的。很多都被制作出来放进贵族的棺材为的是在来生服侍墓地的主人。不像一般的雕塑那样局限在站、坐或者跪几个静态的姿势里。这些图像描绘的行动相当多样，例如研磨谷物，烘焙面包，制作瓦罐或者演奏音乐，同时他们以适当的姿势，或弯腰或蹲下来完成他们的工作。

Orientation and Navigation

To South Americans, robins are birds that fly north every spring. To North Americans, the robins simply vacation in the south each winter. Furthermore, they fly to very specific places in South America and will often come back to the same trees in North American yards the following spring. The question is not why they would leave the cold of winter so much as how they find their way around. The question perplexed people for years, until, in the 1950s, a German scientist named Gustave Kramer provided some answers and, in the process, raised new questions.

Kramer initiated important new kinds of research regarding how animals orient and navigate. Orientation is simply facing in the right direction; navigation involves finding one's way from point A to point B.

Early in his research, Kramer found that caged migratory birds became very restless at about the time they would normally have begun migration in the wild. Furthermore, he noticed that as they fluttered around in the cage, they often launched themselves in the direction of their normal migratory route. He then set up experiments with caged starlings and found that their orientation was, in fact, in the proper migratory direction except when the sky was overcast, at which times there was no clear direction to their restless movements. Kramer surmised, therefore, that they were orienting according to the position of the Sun. To test this idea, he blocked their view of the Sun and used mirrors to change its apparent position. He found that under these circumstances, the birds oriented with respect to the new "Sun." They seemed to be using the Sun as a compass to determine direction. At the time, this idea seemed preposterous. How could a bird navigate by the Sun when some of us lose our way with road maps? Obviously, more testing was in order.

So, in another set of experiments, Kramer put identical food boxes around the cage, with food in only one of the boxes. The boxes were stationary, and the one containing food was always at the same point of the compass. However, its position with respect to the surroundings could be changed by revolving either the inner cage containing the birds or the outer walls, which served as the background. As long as the birds could see the Sun, no matter how their surroundings were altered, they went directly to the correct food box. Whether the box appeared in front of the right wall or the left wall, they showed no signs of confusion. On overcast days, however, the birds were disoriented and had trouble locating their food box.

In experimenting with artificial suns, Kramer made another interesting discovery. If the artificial Sun remained stationary, the birds would shift their direction with respect to it at a rate of about 15 degrees per hour, the Sun's rate of movement across the sky. Apparently, the birds were assuming that the "Sun" they saw was moving at that rate. When the real Sun was visible, however, the birds maintained a constant direction as it moved across the sky. In other words, they were able to compensate for the Sun's movement. This meant that some sort of biological clock was operating—and a very precise clock at that.

What about birds that migrate at night? Perhaps they navigate by the night sky. To test the idea, caged night-migrating birds were placed on the floor of a planetarium during their migratory period. A planetarium is essentially a theater with a domelike ceiling onto which a night sky can be projected for any night of the year. When the planetarium sky matched the sky outside, the birds fluttered in the direction of their normal migration. But when the dome was rotated, the birds changed their direction to match the artificial sky. The results clearly indicated that the birds were orienting according to the stars.

There is accumulating evidence indicating that birds navigate by using a wide variety of environmental cues. Other areas under investigation include magnetism, landmarks, coastlines, sonar, and even smells. The studies are

complicated by the fact that the data are sometimes contradictory and the mechanisms apparently change from time to time. Furthermore, one sensory ability may back up another.

Paragraph 1: To South Americans, robins are birds that fly north every spring. To North Americans, the robins simply vacation in the south each winter. Furthermore, they fly to very specific places in South America and will often come back to the same trees in North American yards the following spring. The question is not why they would leave the cold of winter so much as how they find their way around. The question perplexed people for years, until, in the 1950s, a German scientist named Gustave Kramer provided some answers and, in the process, raised new questions.

1. Which of the following can be inferred about bird migration from paragraph 1?
 - Birds will take the most direct migratory route to their new habitat.
 - The purpose of migration is to join with larger groups of birds.
 - Bird migration generally involves moving back and forth between north and south.
 - The destination of birds' migration can change from year to year.
2. The word "perplexed" in the passage is closest in meaning to
 - defeated
 - interested
 - puzzled
 - occupied

Paragraph 3: Early in his research, Kramer found that caged migratory birds became very restless at about the time they would normally have begun migration in the wild. Furthermore, he noticed that as they fluttered around in the cage, they often launched themselves in the direction of their normal migratory route. He then set up experiments with caged starlings and found that their orientation was, in fact, in the proper migratory direction except when the sky was overcast, at which times there was no clear direction to their restless movements. Kramer surmised, therefore, that they were orienting according to the position of the Sun. To test this idea, he blocked their view of the Sun and used mirrors to change its apparent position. He found that under these circumstances, the birds oriented with respect to the new "Sun." They seemed to be using the Sun as a compass to determine direction. At the time, this idea seemed preposterous. How could a bird navigate by the Sun when some of us lose our way with road maps? Obviously, more testing was in order.

3. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
 - Experiments revealed that caged starlings displayed a lack of directional sense and restless movements.
 - Experiments revealed that caged starlings were unable to orient themselves in the direction of their normal migratory route.
 - Experiments revealed that the restless movement of caged starlings had no clear direction.
 - Experiments revealed that caged starlings' orientation was accurate unless the weather was overcast.
4. The word "preposterous" in the passage is closest in meaning to
 - unbelievable
 - inadequate
 - limited
 - creative
5. According to paragraph 3, why did Kramer use mirrors to change the apparent position of the Sun?

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- To test the effect of light on the birds' restlessness
 - To test whether birds were using the Sun to navigate
 - To simulate the shifting of light the birds would encounter along their regular migratory route
 - To cause the birds to migrate at a different time than they would in the wild

6. According to paragraph 3, when do caged starlings become restless?

- When the weather is overcast
- When they are unable to identify their normal migratory route
- When their normal time for migration arrives
- When mirrors are used to change the apparent position of the Sun

Paragraph 4: So, in another set of experiments, Kramer put identical food boxes around the cage, with food in only one of the boxes. The boxes were stationary, and the one containing food was always at the same point of the compass. However, its position with respect to the surroundings could be changed by revolving either the inner cage containing the birds or the outer walls, which served as the background. As long as the birds could see the Sun, no matter how their surroundings were altered, they went directly to the correct food box. Whether the box appeared in front of the right wall or the left wall, they showed no signs of confusion. On overcast days, however, the birds were disoriented and had trouble locating their food box.

7. Which of the following can be inferred from paragraph 4 about Kramer's reason for filling one food box and leaving the rest empty?

- He believed the birds would eat food from only one box.
- He wanted to see whether the Sun alone controlled the birds' ability to navigate toward the box with food.
- He thought that if all the boxes contained food, this would distract the birds from following their migratory route.
- He needed to test whether the birds preferred having the food at any particular point of the compass.

Paragraph 5: In experimenting with artificial suns, Kramer made another interesting discovery. If the artificial Sun remained stationary, the birds would shift their direction with respect to it at a rate of about 15 degrees per hour, the Sun's rate of movement across the sky. Apparently, the birds were assuming that the "Sun" they saw was moving at that rate. When the real Sun was visible, however, the birds maintained a constant direction as it moved across the sky. In other words, they were able to compensate for the Sun's movement. This meant that some sort of biological clock was operating-and a very precise clock at that.

8. According to paragraph 5, how did the birds fly when the real Sun was visible?

- They kept the direction of their flight constant.
- They changed the direction of their flight at a rate of 15 degrees per hour.
- They kept flying toward the Sun.
- They flew in the same direction as the birds that were seeing the artificial Sun.

9. The experiment described in paragraph 5 caused Kramer to conclude that birds possess a biological clock because

- when birds navigate they are able to compensate for the changing position of the Sun in the sky
- birds' innate bearings keep them oriented in a direction that is within 15 degrees of the Sun's direction
- birds' migration is triggered by natural environmental cues, such as the position of the Sun
- birds shift their direction at a rate of 15 degrees per hour whether the Sun is visible or not

Paragraph 6: What about birds that migrate at night? Perhaps they navigate by the night sky. To test the idea,

caged night-migrating birds were placed on the floor of a planetarium during their migratory period. A planetarium is essentially a theater with a domelike ceiling onto which a night sky can be projected for any night of the year. When the planetarium sky matched the sky outside, the birds fluttered in the direction of their normal migration. But when the dome was rotated, the birds changed their direction to match the artificial sky. The results clearly indicated that the birds were orienting according to the stars.

10. According to paragraph 6, how did the birds navigate in the planetarium's nighttime environment?

- ☐ By waiting for the dome to stop rotating
- ☐ By their position on the planetarium floor
- ☐ By orienting themselves to the stars in the artificial night sky
- ☐ By navigating randomly until they found the correct orientation

11. Which of the following best describes the author's presentation of information in the passage?

- ☐ A number of experiments are described to support the idea that birds use the Sun and the night sky to navigate.
- ☐ The author uses logic to show that the biological clock in birds is inaccurate.
- ☐ A structured argument about the importance of internal versus external cues for navigation is presented.
- ☐ The opposing points of view about bird migration are clarified through the study of contrasting experiments.

Paragraph 7: There is **accumulating** evidence indicating that birds navigate by using a wide variety of environmental cues. Other areas under investigation include magnetism, landmarks, coastlines, sonar, and even smells. The studies are complicated by the fact that the data are sometimes contradictory and the mechanisms apparently change from time to time. Furthermore, one sensory ability may back up another.

12. The word "**accumulating**" in the passage is closest in meaning to

- ☐ new
- ☐ increasing
- ☐ convincing
- ☐ extensive

Paragraph 4: So, in another set of experiments, Kramer put identical food boxes around the cage, with food in only one of the boxes. ■The boxes were stationary, and the one containing food was always at the same point of the compass. ■However, its position with respect to the surroundings could be changed by revolving either the inner cage containing the birds or the outer walls, which served as the background. ■As long as the birds could see the Sun, no matter how their surroundings were altered, they went directly to the correct food box. ■Whether the box appeared in front of the right wall or the left wall, they showed no signs of confusion. On overcast days, however, the birds were disoriented and had trouble locating their food box.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

He arranged the feed boxes at various positions on a compass.

Where would the sentence best fit?

14.**Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Gustave Kramer conducted important research related to the ability of birds to orient and navigate.

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Answer Choices

- Because caged birds become disoriented when the sky is overcast, Kramer hypothesized that birds orient themselves according to the Sun's position.
- In one set of experiments, Kramer placed the box containing food at the same point of the compass each time he put food boxes in the birds' environment.
- Kramer demonstrated that an internal biological clock allows starlings to compensate for the Sun's movement.
- After several studies, Kramer surmised that an internal biological clock allows some species of birds to navigate at night.
- The role of environmental cues in birds' navigation is clear, for on overcast days, birds use objects besides the Sun to orient themselves.
- Kramer showed that night-migrating birds use the sky to navigate by the stars.

参考答案:

1. ○3
2. ○3
3. ○4
4. ○1
5. ○2
6. ○3
7. ○2
- 8.○1
9. ○1
10. ○3
11. ○1
12. ○2
13. ○1
14. Because caged birds...
Kramer demonstrated that...
Kramer showed that...

定位和导航

在南美，知更鸟每年春天都会飞往北方。而在北美，知更鸟每个冬天又都会往南飞。而且，他们会飞往几个固定的位于南美的地方，然后在第二年春年又会回到在北美原来的那些树上。问题是他们为什么会在寒冷的冬天离开，然后又怎样找到迁徙的路径的。这个问题困扰了人们很久，直到 1950 年，一个叫做 **Gustave Kramer** 的德国科学家回答了这个问题。但同时，又提出新的问题。

Kramer 提出了新的重要的关于动物如何定位和航行的研究。定位就是面朝正确的方向，航行包括了找到从 A 点到 B 点的路径。

在这些研究的早期，**Kramer** 发现被关在笼子里有迁徙习惯的鸟在他们往常在野外应该开始迁徙的时候变得好动。而且，他注意到，当这些鸟在笼子里躁动不安时，他们通常将自己推向通常的迁徙路径的方向。他于是将星椋鸟关在笼子里做实验，然后发现了他们的方向。事实上，他们有在适当的迁徙方向，除了天空布满云彩的时候，因为这个时候往往使得他们的骚动不安的活动没有了清楚地方向指向。因此，**Kramer** 猜测道，他们时通过太阳的方位来确定方向的。为了验证这个猜想，他蒙住他们的眼睛并且用镜子改变太阳的自然方位。他发现，在这种环境下，这些鸟按照新的太阳来定位。似乎他们把太阳作为一个罗盘来决定他们的方向。在那个时候，这种猜想看上去是荒谬的，当我们中的一些在有地图的情况下都会走失他们又怎么能够用太阳进行导航呢？显而易见的，接下来会有更多的实验。

所以，在另外一组试验中，**Kramer** 在鸟笼周围放置了相同的餐盒，但是只有一个餐盒中有食物。这些餐盒是静止的，装有食物的那个餐盒始终在罗盘的同一个地点。但是，这个点会由于周围的环境而发生相对改变，那就是既可以通过旋转装有鸟的内部笼子或者旋转作为背景的外墙。只要这些鸟可以看见太阳，无论他们身处的环境如何变化，他们都为径直找到那个正确的餐盒。无论这些盒子是在左墙还是右墙前方，他们都没有表现出迷惑的样子。但是，在阴天，他们就不能定位并且有困难发现盛有食物的餐盒。

在关于人造太阳的试验中，**Kramer** 又有一些有意思的法相。如果人工太阳保持静止，这些鸟会每小时以 15° 的速度去改变他们的方向，这个速度正是太阳在天空中运动的速度。显然，这些鸟认为他们所看见的“太阳”是按照这个速度移动的。但是，当看见真正的太阳时，这些鸟保持了连贯的方向，正如太阳在天空中移动一样。也就是说，他们可以适应太阳的运动。这就意味着，有一种非常精准的生物钟在起着作用。

那些在夜晚迁徙的鸟又是怎样的呢？也许他们通过夜晚的天空来航行。为了验证这个猜想，这些在夜晚迁徙的鸟被关进笼子里，并在他们的迁徙期放置在一个天文馆里。这个天文馆是一个具有穹顶状的天花板的剧场，并且这些天花板可以放映出一年中任何夜晚的样子。当天文馆的屋顶与外面的天空相吻合时，这些鸟就会朝着往常迁徙的方向振翅。但是当这个圆屋顶旋转的时候，这些鸟改变方向以适应这个人造天空。这就清楚地表明这些鸟是通过星星来进行方向定位的。

这些不断积累的证据表明鸟是通过非常多的外界环境信息来引导他们的航行的。包括磁场、里程碑、海岸性、声波甚至气味也同样被作为实验对象进行观察。由于这些数据常常是相反的并且磁场经常随着时间的改变而改变的事实，使得这些研究非常的复杂。此外，一种知觉能力可能会支持另一种。

Begging by Nestlings

Many signals that animals make seem to impose on the signalers costs that are overly damaging. A classic example is noisy begging by nestling songbirds when a parent returns to the nest with food. These loud cheeps and peeps might give the location of the nest away to a listening hawk or raccoon, resulting in the death of the defenseless nestlings. In fact, when tapes of begging tree swallows were played at an artificial swallow nest containing an egg, the egg in that “noisy” nest was taken or destroyed by predators before the egg in a nearby quiet nest in 29 of 37 trials.

Further evidence for the costs of begging comes from a study of differences in the begging calls of warbler species that nest on the ground versus those that nest in the relative safety of trees. The young of ground-nesting warblers produce begging cheeps of higher frequencies than do their tree-nesting relatives. These higher-frequency sounds do not travel as far, and so may better conceal the individuals producing them, who are especially vulnerable to predators in their ground nests. David Haskell created artificial nests with clay eggs and placed them on the ground beside a tape recorder that played the begging calls of either tree-nesting or of ground-nesting warblers. The eggs “advertised” by the tree-nesters’ begging calls were found bitten significantly more often than the eggs associated with the ground-nesters’ calls.

The hypothesis that begging calls have evolved properties that reduce their potential for attracting predators yields a prediction: baby birds of species that experience high rates of nest predation should produce softer begging signals of higher frequency than nestlings of other species less often victimized by nest predators. This prediction was supported by data collected in one survey of 24 species from an Arizona forest, more evidence that predator pressure favors the evolution of begging calls that are hard to detect and pinpoint.

Given that predators can make it costly to beg for food, what benefit do begging nestlings derive from their communications? One possibility is that a noisy baby bird provides accurate signals of its real hunger and good health, making it worthwhile for the listening parent to give it food in a nest where several other offspring are usually available to be fed. If this hypothesis is true, then it follows that nestlings should adjust the intensity of their signals in relation to the signals produced by their nestmates, who are competing for parental attention. When experimentally deprived baby robins are placed in a nest with normally fed siblings, the hungry nestlings beg more loudly than usual—but so do their better-fed siblings, though not as loudly as the hungrier birds.

If parent birds use begging intensity to direct food to healthy offspring capable of vigorous begging, then parents should make food delivery decisions on the basis of their offsprings’ calls. Indeed, if you take baby tree swallows out of a nest for an hour feeding half the set and starving the other half, when the birds are replaced in the nest, the starved youngsters beg more loudly than the fed birds, and the parent birds feed the active beggars more than those who beg less vigorously.

As these experiments show, begging apparently provides a signal of need that parents use to make judgments about which offspring can benefit most from a feeding. But the question arises, why don't nestlings beg loudly when they aren't all that hungry? By doing so, they could possibly secure more food, which should result in more rapid growth or larger size, either of which is advantageous. The answer lies apparently not in the increased energy costs of exaggerated begging—such energy costs are small relative to the potential gain in calories—but rather in the damage that any successful cheater would do to its siblings, which share genes with one another. An individual's success in propagating his or her genes can be affected by more than just his or her own personal reproductive success. Because close relatives have many of the same genes, animals that harm their close relatives may in effect be destroying some of their own genes. Therefore, a

begging nestling that secures food at the expense of its siblings might actually leave behind fewer copies of its genes overall than it might otherwise.

Paragraph 1: Many signals that animals make seem to **impose on** the signalers costs that are overly damaging. A classic example is noisy begging by nestling songbirds when a parent returns to the nest with food. These loud cheeps and peeps might give the location of the nest away to a listening hawk or raccoon, resulting in the death of the defenseless nestlings. In fact, when tapes of begging tree swallows were played at an artificial swallow nest containing an egg, the egg in that “noisy” nest was taken or destroyed by predators before the egg in a nearby quiet nest in 29 of 37 trials.

1. The phrase “**impose on**” in the passage is closest in meaning to
 - increase for
 - remove from
 - place on
 - distribute to
2. According to paragraph 1, the experiment with tapes of begging tree swallows establishes which of the following?
 - Begging by nestling birds can attract the attention of predators to the nest.
 - Nest predators attack nests that contain nestlings more frequently than they attack nests that contain only eggs.
 - Tapes of begging nestlings attract predators to the nest less frequently than real begging calls do.
 - Nest predators have no other means of locating bird nests except the begging calls of nestling birds.

Paragraph 2: Further evidence for the costs of begging comes from a study of differences in the begging calls of warbler species that nest on the ground versus those that nest in the relative safety of trees. The young of ground-nesting warblers produce begging cheeps of higher frequencies than do their tree-nesting relatives. These higher-frequency sounds do not travel as far, and so may better conceal the individuals producing them, who are especially vulnerable to predators in their ground nests. David Haskell created **artificial** nests with clay eggs and placed them on the ground beside a tape recorder that played the begging calls of either tree-nesting or of ground-nesting warblers. The eggs “advertised” by the tree-nesters' begging calls were found bitten significantly more often than the eggs associated with the ground-nesters' calls.

3. The word “**artificial**” in the passage is closest in meaning to
 - attractive
 - not real
 - short-term
 - well designed
4. Paragraph 2 indicates that the begging calls of tree nesting warblers
 - put them at more risk than ground-nesting warblers experience
 - can be heard from a greater distance than those of ground-nesting warblers
 - are more likely to conceal the signaler than those of ground-nesting warblers
 - have higher frequencies than those of ground-nesting warblers
5. The experiment described in paragraph 2 supports which of the following conclusions?
 - Predators are unable to distinguish between the begging cheeps of ground-nesting and those of tree-nesting warblers except by the differing frequencies of the calls.

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- When they can find them, predators prefer the eggs of tree-nesting warblers to those of ground-nesting warblers.
 - The higher frequencies of the begging cheeps of ground-nesting warblers are an adaptation to the threat that ground-nesting birds face from predators.
 - The danger of begging depends more on the frequency of the begging cheep than on how loud it is.

Paragraph 3: The hypothesis that begging calls have evolved properties that reduce their potential for attracting predators yields a prediction: baby birds of species that experience high rates of nest predation should produce softer begging signals of higher frequency than nestlings of other species less often victimized by nest predators. This prediction was supported by data collected in one survey of 24 species from an Arizona forest, more evidence that predator pressure favors the evolution of begging calls that are hard to detect and pinpoint.

6. The word “prediction” in the passage is closest in meaning to

- surprise
- discovery
- explanation
- expectation

7. The word “pinpoint” in the passage is closest in meaning to

- observe
- locate exactly
- copy accurately
- recognize

Paragraph 4: Given that predators can make it costly to beg for food, what benefit do begging nestlings derive from their communications? One possibility is that a noisy baby bird provides accurate signals of its real hunger and good health, making it worthwhile for the listening parent to give it food in a nest where several other offspring are usually available to be fed. If this hypothesis is true, then it follows that nestlings should adjust the intensity of their signals in relation to the signals produced by their nestmates, who are competing for parental attention. When experimentally deprived baby robins are placed in a nest with normally fed siblings, the hungry nestlings beg more loudly than usual—but so do their better-fed siblings, though not as loudly as the hungrier birds.

8. The word “derive” in the passage is closest in meaning to

- require
- gain
- use
- produce

Paragraph 4: Given that predators can make it costly to beg for food, what benefit do begging nestlings derive from their communications? One possibility is that a noisy baby bird provides accurate signals of its real hunger and good health, making it worthwhile for the listening parent to give it food in a nest where several other offspring are usually available to be fed. If this hypothesis is true, then it follows that nestlings should adjust the intensity of their signals in relation to the signals produced by their nestmates, who are competing for parental attention. When experimentally deprived baby robins are placed in a nest with normally fed siblings, the hungry nestlings beg more loudly than usual—but so do their better-fed siblings, though not as loudly as the hungrier birds.

Paragraph 5: If parent birds use begging intensity to direct food to healthy offspring capable of vigorous begging, then parents should make food delivery decisions on the basis of their offspring's calls. Indeed, if you take baby tree swallows out of a nest for an hour feeding half the set and starving the other half, when the birds are replaced in the nest, the starved youngsters beg more loudly than the fed birds, and the parent birds feed the active beggars more than those who beg less

vigorously.

9. In paragraphs 4 and 5, what evidence supports the claim that the intensity of nestling begging calls is a good indicator of which offspring in a nest would most benefit from a feeding?

- When placed in a nest with hungry robins, well-fed robins did not beg for food.
- Among robin nestlings, the intensity of begging decreased the more the nestlings were fed.
- Hungry tree swallow nestlings begged louder than well-fed nestlings in the same nest.
- Hungry tree swallow nestlings continued to beg loudly until they were fed whereas well-fed nestlings soon stopped begging.

10. It can be inferred from paragraphs 4 and 5 that parent songbirds normally do not feed

- nestlings that are too weak to beg for food as vigorously as their nestmates
- more than one hungry nestling during a single visit to the nest
- offspring that were fed by the parents on the previous visit to the nest
- nestlings that have been removed and then later put back into their nest

Paragraph 6: As these experiments show, begging apparently provides a signal of need that parents use to make judgments about which offspring can benefit most from a feeding. But the question arises, why don't nestlings beg loudly when they aren't all that hungry? By doing so, they could possibly secure more food, which should result in more rapid growth or larger size, either of which is advantageous. The answer lies apparently not in the increased energy costs of exaggerated begging—such energy costs are small relative to the potential gain in calories—but rather in the damage that any successful cheater would do to its siblings, which share genes with one another. An individual's success in propagating his or her genes can be affected by more than just his or her own personal reproductive success. Because close relatives have many of the same genes, animals that harm their close relatives may in effect be destroying some of their own genes. Therefore, a begging nestling that secures food at the expense of its siblings might actually leave behind fewer copies of its genes overall than it might otherwise.

11. In paragraph 6, the author compares the energy costs of vigorous begging with the potential gain in calories from such begging in order to

- explain why begging for food vigorously can lead to faster growth and increased size
- explain how begging vigorously can increase an individual's chance of propagating its own genes
- point out a weakness in a possible explanation for why nestlings do not always beg vigorously
- argue that the benefits of vigorous begging outweigh any possible disadvantages

12. According to paragraph 6, which of the following explains the fact that a well-fed nestling does not beg loudly for more food?

- There is no benefit for a nestling to get more food than it needs to survive.
- By begging loudly for food it does not need, a nestling would unnecessarily expose itself to danger from predators.
- If a nestling begs loudly when it is not truly hungry, then when it is truly hungry its own begging may be drowned out by that of its well-fed siblings.
- More of a nestling's genes will be passed to the next generation if its hungry siblings get enough food to survive.

Paragraph 1: Many signals that animals make seem to impose on the signalers costs that are overly damaging. ■ A classic example is noisy begging by nestling songbirds when a parent returns to the nest with food. ■ These loud cheeps and peeps might give the location of the nest away to a listening hawk or raccoon, resulting in the death of the defenseless nestlings. ■ In fact, when tapes of begging tree swallows were played at an artificial swallow nest containing an egg, the egg in that “noisy” nest was taken or destroyed by predators before the egg in a nearby quiet nest in 29 of 37 trials. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

The cheeping provides important information to the parent, but it could also attract the attention of others.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Experiments have shed much light on the begging behaviors of baby songbirds.

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Answer Choices

- Songbird species that are especially vulnerable to predators have evolved ways of reducing the dangers associated with begging calls.
- Songbird parents focus their feeding effort on the nestlings that beg loudest for food.
- It is genetically disadvantageous for nestlings to behave as if they are really hungry when they are not really hungry.
- The begging calls of songbird nestlings provide a good example of overly damaging cost to signalers of signaling.
- The success with which songbird nestlings communicate their hunger to their parents is dependent on the frequencies of the nestlings' begging calls.
- Songbird nestlings have evolved several different ways to communicate the intensity of their hunger to their parents.

参考答案:

1. ○3
2. ○1
3. ○2
4. ○2
5. ○3
6. ○4
7. ○2
- 8.○2
9. ○3
10. ○1
11. ○3
12. ○4
13. ○2
14. Songbird species that...
Songbird parents focus...
It is genetically...

雏鸟的乞食行为

一些动物发出的信号可能会给他们自身带来过份的伤害，一个典型的例子就是鸣禽的雏鸟在它们的父母带着食物归巢时吵闹的乞食行为。这些叽叽喳喳的叫声有时会让巢外的老鹰和浣熊听到并且定位，从而致使毫无抵抗能力的雏鸟丧命。事实上，一个蛋被放在一个假的树燕巢中且附近播放着树燕乞食叫声的录音带时，这个“嘈杂”的巢中的蛋在 39 次试验中有 27 次早于放在安静的巢中的蛋而被食肉动物带走或毁掉。

乞食行为成本更进一步的证据来自与一项关于地面筑巢的黄莺与住在相对安全的树上的黄莺对比的研究。幼年的地面筑巢的黄莺所发出的乞食叫声的频率要高于树上筑巢的黄莺。这种高频的声音不会传播的很远，可以更好的隐藏这些容易受到食肉动物攻击的在地面筑巢的雏鸟。**David Haskell** 制作了一个盛有泥蛋的假巢并把它分别放在播放地面筑巢和播放筑巢的黄莺的乞食声音的录音机旁。被放在树上筑巢的声音旁的蛋被发现的几率要比被放在地面筑巢的黄莺声音旁的蛋高得多。

一个关于乞食行为的假说认为乞食行为已经进化出了一种降低他们被食肉动物发现的几率的预防机制：这种高被捕食率的种类的幼鸟需要发出比其他被食肉动物较少捕杀的幼鸟更高的频率和更小的叫声。在对亚马逊森林里的 24 个物种进行调查和收集的数据证实了这种预防机制，而更多的证据也表明食肉动物迫使乞食叫声变得难以侦测和定位。

考虑到食肉动物可以让雏鸟为了得到食物而付出巨大代价，那么到底雏鸟可以从乞食行为这种交流方式中得到什么？一个可能的原因使吵闹的幼鸟可以给出准确的信号：他们很饿而且很健康，这么做是为了让它的父母在与众多同巢的其它可以被喂食的后代中挑选出它作为喂食对象。如果这个假说成立，那么可以推出雏鸟是因为其他与之争抢父母注意的同伴发出的信号而调整它们信号的强度。当实验性的带走的幼年知更鸟并安放在那些正常喂养的同类的巢中，饥饿的雏鸟的乞食行为会比那些正常的要大，但是那些喂养的更好的同类反而叫得不像饥饿的鸟那么响。

如果成鸟是根据乞食的剧烈程度来派发食物给那些健康的更积极乞食的后代，那么父母分配食物的决定就是建立在他们的后代的叫声上的。所以，如果你把一个雏燕带离鸟巢并在一个小时里只喂半饱，当这个雏鸟被放回巢时，这个饿坏了的小家伙会比其他吃饱了的叫得更响，它的父母也会喂它比喂那些乞食不积极的幼鸟更多。

这些实验表明，乞食行为很明显的提供给父母一个用于判断谁可以从喂食中获益更多的需求信号。但是问题又出来了，为什么雏鸟不在它们不饿的时候大声的乞食呢？如果它们这样做了，那就可以保证更多的食物，也就能更快的成长或者拥有更大的体型，怎么说都是有利的。这个问题的答案显然不是在与因为过分乞食而消耗的能量，因为这些损耗的能量对于其潜在能得到的热量来说只是冰山一角——而是因为任何成功的骗子这么做了的话就会对他们和他们共享基因的同伴产生危害。

一个个体在繁衍中延续他或她的基因所产生的影响要比只是它个人的延续繁衍要成功。因为近亲中有很多相似的基因，动物伤害它们的近亲很可能同时摧毁一些他们自己的自有基因。因此，一只在它的同类吃饱后仍然能保证食物来源以供生存的雏鸟，所保存的基因往往要比另一种单一的办法所延续的基因要多。

Which Hand Did They Use?

We all know that many more people today are right-handed than left-handed. Can one trace this same pattern far back in prehistory? Much of the evidence about right-hand versus left-hand dominance comes from stencils and prints found in rock shelters in Australia and elsewhere, and in many Ice Age caves in France, Spain, and Tasmania. When a left hand has been stenciled, this implies that the artist was right-handed, and vice versa. Even though the paint was often sprayed on by mouth, one can assume that the dominant hand assisted in the operation. One also has to make the assumption that hands were stenciled palm downward—a left hand stenciled palm upward might of course look as if it were a right hand. Of 158 stencils in the French cave of Gargas, 136 have been identified as left, and only 22 as right; right-handedness was therefore heavily predominant.

Cave art furnishes other types of evidence of this phenomenon. Most engravings, for example, are best lit from the left, as befits the work of right-handed artists, who generally prefer to have the light source on the left so that the shadow of their hand does not fall on the tip of the engraving tool or brush. In the few cases where an Ice Age figure is depicted holding something, it is mostly, though not always, in the right hand.

Clues to right-handedness can also be found by other methods. Right-handers tend to have longer, stronger, and more muscular bones on the right side, and Marcellin Boule as long ago as 1911 noted the La Chapelle-aux-Saints Neanderthal skeleton had a right upper arm bone that was noticeably stronger than the left. Similar observations have been made on other Neanderthal skeletons such as La Ferrassie I and Neanderthal itself.

Fractures and other cut marks are another source of evidence. Right-handed soldiers tend to be wounded on the left. The skeleton of a 40- or 50-year-old Nabatean warrior, buried 2,000 years ago in the Negev Desert, Israel, had multiple healed fractures to the skull, the left arm, and the ribs.

Tools themselves can be revealing. Long-handed Neolithic spoons of yew wood preserved in Alpine villages dating to 3000 B.C. have survived; the signs of rubbing on their left side indicate that their users were right-handed. The late Ice Age rope found in the French cave of Lascaux consists of fibers spiraling to the right, and was therefore tressed by a righthander.

Occasionally one can determine whether stone tools were used in the right hand or the left, and it is even possible to assess how far back this feature can be traced. In stone toolmaking experiments, Nick Toth, a right-hander, held the core (the stone that would become the tool) in his left hand and the hammer stone in his right. As the tool was made, the core was rotated clockwise, and the flakes, removed in sequence, had a little crescent of cortex (the core's outer surface) on the side. Toth's knapping produced 56 percent flakes with the cortex on the right, and 44 percent left-oriented flakes. A left-handed toolmaker would produce the opposite pattern. Toth has applied these criteria to the similarly made pebble tools from a number of early sites (before 1.5 million years) at Koobi Fora, Kenya, probably made by *Homo habilis*. At seven sites he found that 57 percent of the flakes were right-oriented, and 43 percent left, a pattern almost identical to that produced today.

About 90 percent of modern humans are right-handed: we are the only mammal with a preferential use of one hand. The part of the brain responsible for fine control and movement is located in the left cerebral hemisphere, and the findings above suggest that the human brain was already asymmetrical in its structure and function not long after 2

million years ago. Among Neanderthals of 70,000–35,000 years ago, Marcellin Boule noted that the La Chapelle-aux-Saints individual had a left hemisphere slightly bigger than the right, and the same was found for brains of specimens from Neanderthal, Gibraltar, and La Quina.

Paragraph 1: We all know that many more people today are right-handed than left-handed. Can one trace this same pattern far back in prehistory? Much of the evidence about right-hand versus left-hand dominance comes from stencils and prints found in rock shelters in Australia and elsewhere, and in many Ice Age caves in France, Spain, and Tasmania. When a left hand has been stenciled, this implies that the artist was right-handed, and vice versa. Even though the paint was often sprayed on by mouth, one can assume that the dominant hand assisted in the operation. One also has to make the assumption that hands were stenciled palm downward—a left hand stenciled palm upward might of course look as if it were a right hand. Of 158 stencils in the French cave of Gargas, 136 have been identified as left, and only 22 as right; right-handedness was therefore heavily predominant.

1. The phrase “assisted in” in the passage is closest in meaning to
 - initiated
 - dominated
 - helped with
 - setup
2. It can be inferred from paragraph 1 that even when paint was sprayed by mouth to make a hand stencil
 - there was no way to tell which hand was stenciled
 - the stenciled hand was the weaker hand
 - the stenciled hand was the dominant hand
 - artists stenciled more images of the dominant hand than they did of the weak

Paragraph 2: Cave art furnishes other types of evidence of this phenomenon. Most engravings, for example, are best lit from the left, as befits the work of right-handed artists, who generally prefer to have the light source on the left so that the shadow of their hand does not fall on the tip of the engraving tool or brush. In the few cases where an Ice Age figure is depicted holding something, it is mostly, though not always, in the right hand.

3. The phrase “depicted” in the passage is closest in meaning to
 - identified
 - revealed
 - pictured
 - imagined
4. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
 - Right-handed artists could more easily have avoided casting shadows on their work, because engravings in prehistoric caves were lit from the left.
 - The tips of engraving tools and brushes indicate that these instruments were used by right-handed artists whose work was lit from the left.
 - The best lighting for most engravings suggests that they were made by right-handed people trying to avoid the shadow of their hands interfering with their work.
 - Right-handed artists try to avoid having the brush they are using interfere with the light source.

Paragraph 1: We all know that many more people today are right-handed than left-handed. Can one trace this

same pattern far back in prehistory? Much of the evidence about right-hand versus left-hand dominance comes from stencils and prints found in rock shelters in Australia and elsewhere, and in many Ice Age caves in France, Spain, and Tasmania. When a left hand has been stenciled, this implies that the artist was right-handed, and vice versa. Even though the paint was often sprayed on by mouth, one can assume that the dominant hand assisted in the operation. One also has to make the assumption that hands were stenciled palm downward—a left hand stenciled palm upward might of course look as if it were a right hand. Of 158 stencils in the French cave of Gargas, 136 have been identified as left, and only 22 as right; right-handedness was therefore heavily predominant.

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5. All of the following are mentioned in paragraphs 1 and 2 as evidence of right-handedness in art and artists EXCEPT

- the ideal source of lighting for most engravings
- the fact that a left hand stenciled palm upward might look like a right hand
- the prevalence of outlines of left hands
- figures in prehistoric art holding objects with the right hand

Paragraph 3: Clues to right-handedness can also be found by other methods. Right-handers tend to have longer, stronger, and more muscular bones on the right side, and Marcellin Boule as long ago as 1911 noted the La Chapelle-aux-Saints Neanderthal skeleton had a right upper arm bone that was noticeably stronger than the left. Similar observations have been made on other Neanderthal skeletons such as La Ferrassie I and Neanderthal itself.

6. According to paragraph 3, the La Chapelle-aux-Saints Neanderthal skeleton can be identified as right-handed because

- other Neanderthal skeletons found nearby are also right-handed
- the right arm bone is stronger than the left
- it is similar to skeletons of La Ferrassie I and Neanderthal
- the right side of the skeleton shows less evidence of fractures

Paragraph 4: Fractures and other cut marks are another source of evidence. Right-handed soldiers tend to be wounded on the left. The skeleton of a 40- or 50-year-old Nabatean warrior, buried 2,000 years ago in the Negev Desert, Israel, had multiple healed fractures to the skull, the left arm, and the ribs.

7. Which of the following statements about fractures and cut marks can be inferred from paragraph 4?

- Fractures and cut marks caused by right-handed soldiers tend to occur on the right side of the injured party's body.
- The right arm sustains more injuries because, as the dominant arm, it is used more actively.
- In most people, the left side of the body is more vulnerable to injury since it is not defended effectively by the dominant arm.
- Fractures and cut marks on fossil humans probably occurred after death.

Paragraph 5: Tools themselves can be revealing. Long-handed Neolithic spoons of yew wood preserved in Alpine villages dating to 3000 B.C. have survived; the signs of rubbing on their left side indicate that their users were right-handed. The late Ice Age rope found in the French cave of Lascaux consists of fibers spiraling to the right, and was therefore tressed by a righthander.

8. According to paragraph 5, what characteristic of a Neolithic spoon would imply that the spoon's owner was right-handed?

- The direction of the fibers
- Its long handle
- The yew wood it is carved from
- Wear on its left side

9. In paragraph 5, why does the author mention the Ice Age rope found in the French cave of Lascaux?

- As an example of an item on which the marks of wear imply that it was used by a right-handed person
- Because tressing is an activity that is easier for a right-handed person than for a left-handed person
- Because the cave of Lascaux is the site where researchers have found several prehistoric tools made for right-handed people
- As an example of an item whose construction shows that it was right handed made by a right-person

Paragraph 6: Occasionally one can determine whether stone tools were used in the right hand or the left, and it is even possible to assess how far back this feature can be traced. In stone toolmaking experiments, Nick Toth, a right-hander, held the core (the stone that would become the tool) in his left hand and the hammer stone in his right. As the tool was made, the core was rotated clockwise, and the flakes, removed in sequence, had a little crescent of cortex (the core's outer surface) on the side. Toth's knapping produced 56 percent flakes with the cortex on the right, and 44 percent left-oriented flakes. A left-handed toolmaker would produce the opposite pattern. Toth has applied these criteria to the similarly made pebble tools from a number of early sites (before 1.5 million years) at Koobi Fora, Kenya, probably made by *Homo habilis*. At seven sites he found that 57 percent of the flakes were right-oriented, and 43 percent left, a pattern almost identical to that produced today.

10. The word "criteria" in the passage is closest in meaning to

- standards
- findings
- ideas
- techniques

11. What was the purpose of Toth's toolmaking experiment described in paragraph 6?

- To shape tools that could be used by either hand
- To produce replicas of early tools for display in museums
- To imitate the production of pebble tools from early sites
- To determine which hand made the early tools

Paragraph 7: About 90 percent of modern humans are right-handed: we are the only mammal with a preferential use of one hand. The part of the brain responsible for fine control and movement is located in the left cerebral hemisphere, and the findings above suggest that the human brain was already asymmetrical in its structure and function not long after 2 million years ago. Among Neanderthals of 70,000–35,000 years ago, Marcellin Boule noted that the La Chapelle-aux-Saints individual had a left hemisphere slightly bigger than the right, and the same was found for brains of specimens from Neanderthal, Gibraltar, and La Quina.

12. What is the author's primary purpose in paragraph 7?

- To illustrate the importance of studying the brain
- To demonstrate that human beings are the only mammal to desire fine control of movement
- To contrast the functions of the two hemispheres of the brain

-
- To demonstrate that right-hand preference has existed for a long time

Paragraph 1: We all know that many more people today are right-handed than left-handed. Can one trace this same pattern far back in prehistory? ■Much of the evidence about right-hand versus left-hand dominance comes from stencils and prints found in rock shelters in Australia and elsewhere, and in many Ice Age caves in France, Spain, and Tasmania. ■When a left hand has been stenciled, this implies that the artist was right-handed, and vice versa. ■Even though the paint was often sprayed on by mouth, one can assume that the dominant hand assisted in the operation. One also has to make the assumption that hands were stenciled palm downward—a left hand stenciled palm upward might of course look as if it were a right hand. ■Of 158 stencils in the French cave of Gargas, 136 have been identified as left, and only 22 as right; right-handedness was therefore heavily predominant.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

The stencils of hands found in these shelters and caves allow us to draw conclusions about which hand was dominant.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Several categories of evidence indicate that people have always been predominantly right-handed

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-
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Answer Choices

- Stencils of right-handed figures are characteristic of cave art in France, Spain, and Tasmania.
- Signs on the skeletal remains of prehistoric figures, including arm-bone size and injury marks, imply that these are the remains of right-handed people.
- Instruments such as spoons, ropes, and pebble tools show signs that indicate they were used or constructed by right-handed people.
- The amount of prehistoric art created by right-handed artists indicates that left-handed people were in the minority.
- Neanderthal skeletons often have longer finger bones in the right hand, which is evidence that the right hand was stronger.
- Nick Toth, a modern right-handed toolmaker, has shown that prehistoric tools were knapped to fit the right hand.

参考答案:

1. ○3
2. ○2
3. ○3
4. ○3
5. ○2
6. ○2
7. ○3
- 8.○4
9. ○4
10. ○1
11. ○4
12. ○4
13. ○2
14. Signs on the
Instruments such as
The amount of

他们到底用哪只手？

我们都知道，活在当下的人们更多是使用右手而非左手。能不能在史前查找出这一相似的性状呢？有太多的来自澳大利亚地区的石屋中模板和字迹以及冰河期法国西班牙以及塔斯马尼亚地区的岩洞上搜集到的证据证明右手较之于左手的优势。当一个左手被用于塑模时就反向暗示了制作他的工匠惯于使用右手。即使是制作一幅画作需要用嘴喷涂，也可以想象惯用手是如何在这一过程中起到协助作用的。另一个假设是被用于塑模的手手掌向下-一只左手塑模朝上也许让它看起来像一只右手。在法国 **Gargas** 岩洞中的 **158** 个模板中，有 **136** 个鉴定确认为左手，只有 **22** 个是右手；右手习惯毫无疑问是据绝对主导地位的。

岩洞艺术的其他形式也为这一现象提供了依据。例如大多数的雕版都是左起的光照最好，因为是配合惯用右手的工匠的工作，他们经常喜欢让光线从左边照过来以便他们手的影子不会投射在雕板工具或是刷子的末端。很多冰河时期的雕塑都被雕刻为拿着一些物品的模样，尽管不是绝对的，但是起码大多数都是放在右手手上。

其他方法也能理出右手使用习惯的线索。右撇子的右侧身体会趋于更长，更壮，更多肌肉的骨骼。**Marcellin Boule** 早在 **1911** 提到的尼安德特人的骨架有一个右侧上肢骨骼要明显强壮与左侧。对其他尼安德特人的骨架也曾做过类似的调查，例如 **la Ferrassie** 和尼安德特人本族的族人。

断痕与割痕也是论据的另一来源。右撇子勇士一般都是左侧容易受伤。在内盖夫的戈壁中被埋了 **2000** 多年的一个 **40-50** 岁之间的 **Nabatean** 勇士的骨架，在他的头部，左臂和肋骨上有多处已愈合的伤痕。

工具的本身也会反映这一现象。长条型新石器时代的紫杉木质勺子从史前 **3000** 年一直完好的保存到现在。在它左侧的磨痕证明了他们的主人惯用右手。在法国的拉克斯岩洞艺术找到的晚石器时代的绳子是由向右旋转的纤维捆成的，当然也就证实了出自右撇子之手。

偶尔也能确定石器是左手适用还是右手使用，甚至可以查出这些特征是在多远的过去被留下的。在石器制造试验中，**Nick toth**，一个右撇子用左手拿着一个石胚（就是一块是要成为工具的石头）同时用右手抡锤。由于工具的作用，胚子顺时针的旋转的同时，小碎片一点点地去掉，在一侧留下月牙状的表层（石头胚子的表面）。**Toth's** 的敲打产生的碎痕百分之 **56** 留在了右侧的表面，百分之 **44** 留在了左侧朝向的碎痕。一个左撇子工匠则会生产出相反的花纹，**Toth** 将这种标准对照到数个在 **Kombi Fora**（距今一百五十万年前）发现的类似卵石工具上，他在七个地点找到的百分之 **57** 的碎痕是右侧朝向，而百分之 **47** 是左侧朝向，就和今天我们所生产的花纹一样。

大约百分之九十的现代人是右撇子；我们都是只是优先使用一只手的哺乳动物。大脑负责良好的控制行动的区域位于脑部的左半球，这也证明的人类大脑的机构和功能上的不对称性在两百万年前就已经定型了。在距今 **70000** 到 **35000** 年的尼安德特人中，**Marcellin Boule** 发现 **La Chapelle-aux-Saints**（某人种吧）的个体的左脑半球稍微比右边大一点，与之类似的也被发现在尼安德特人，直布罗陀人和拉昆尼亚人种的脑型中

Transition to Sound in Film

The shift from silent to sound film at the end of the 1920s marks, so far, the most important transformation in motion picture history. Despite all the highly visible technological developments in theatrical and home delivery of the moving image that have occurred over the decades since then, no single innovation has come close to being regarded as a similar kind of watershed. In nearly every language, however the words are phrased, the most basic division in cinema history lies between films that are mute and films that speak.

Yet this most fundamental standard of historical periodization conceals a host of paradoxes. Nearly every movie theater, however modest, had a piano or organ to provide musical accompaniment to silent pictures. In many instances, spectators in the era before recorded sound experienced elaborate aural presentations alongside movies' visual images, from the Japanese benshi (narrators) crafting multivoiced dialogue narratives to original musical compositions performed by symphony-size orchestras in Europe and the United States. In Berlin, for the premiere performance outside the Soviet Union of *The Battleship Potemkin*, film director Sergei Eisenstein worked with Austrian composer Edmund Meisel (1874-1930) on a musical score matching sound to image; the Berlin screenings with live music helped to bring the film its wide international fame.

Beyond that, the triumph of recorded sound has overshadowed the rich diversity of technological and aesthetic experiments with the visual image that were going forward simultaneously in the 1920s. New color processes, larger or differently shaped screen sizes, multiple-screen projections, even television, were among the developments invented or tried out during the period, sometimes with startling success. The high costs of converting to sound and the early limitations of sound technology were among the factors that suppressed innovations or retarded advancement in these other areas. The introduction of new screen formats was put off for a quarter century, and color, though utilized over the next two decades for special productions, also did not become a norm until the 1950s.

Though it may be difficult to imagine from a later perspective, a strain of critical opinion in the 1920s predicted that sound film would be a technical novelty that would soon fade from sight, just as had many previous attempts, dating well back before the First World War, to link images with recorded sound. These critics were making a common assumption—that the technological inadequacies of earlier efforts (poor synchronization, weak sound amplification, fragile sound recordings) would invariably occur again. To be sure, their evaluation of the technical flaws in 1920s sound experiments was not so far off the mark, yet they neglected to take into account important new forces in the motion picture field that, in a sense, would not take no for an answer.

These forces were the rapidly expanding electronics and telecommunications companies that were developing and linking telephone and wireless technologies in the 1920s. In the United States, they included such firms as American Telephone and Telegraph, General Electric, and Westinghouse. They were interested in all forms of sound technology and all potential avenues for commercial exploitation. Their competition and collaboration were creating the broadcasting industry in the United States, beginning with the introduction of commercial radio programming in the early 1920s. With financial assets considerably greater than those in the motion picture industry, and perhaps a wider vision of the relationships among entertainment and communications media, they revitalized research into recording sound for motion pictures.

In 1929 the United States motion picture industry released more than 300 sound films—a rough figure, since a number were silent films with music tracks, or films prepared in dual versions, to take account of the many cinemas not yet wired for sound. At the production level, in the United States the conversion was virtually complete by 1930. In Europe it took a little longer, mainly because there were more small producers for whom the

costs of sound were prohibitive, and in other parts of the world problems with rights or access to equipment delayed the shift to sound production for a few more years (though cinemas in major cities may have been wired in order to play foreign sound films). The triumph of sound cinema was swift, complete, and enormously popular.

Paragraph 1: The shift from silent to sound film at the end of the 1920s marks, so far, the most important transformation in motion picture history. Despite all the highly visible technological developments in theatrical and home delivery of the moving image that have occurred over the decades since then, no single innovation has come close to being regarded as a similar kind of watershed. In nearly every language, however the words are phrased, the most basic division in cinema history lies between films that are mute and films that speak.

1. The word “regarded” in the passage is closest in meaning to
 - analyzed
 - considered
 - altered
 - criticized
2. According to paragraph 1, which of the following is the most significant development in the history of film?
 - The technological innovation of sound film during the 1920s
 - The development of a technology for translating films into other languages
 - The invention of a method for delivering movies to people's homes
 - The technological improvements allowing clearer images in films

Paragraph 2: Yet this most fundamental standard of historical periodization conceals a host of paradoxes. Nearly every movie theater, however modest, had a piano or organ to provide musical accompaniment to silent pictures. In many instances, spectators in the era before recorded sound experienced elaborate aural presentations alongside movies' visual images, from the Japanese benshi (narrators) crafting multivoiced dialogue narratives to original musical compositions performed by symphony-size orchestras in Europe and the United States. In Berlin, for the premiere performance outside the Soviet Union of The Battleship Potemkin, film director Sergei Eisenstein worked with Austrian composer Edmund Meisel (1874-1930) on a musical score matching sound to image; the Berlin screenings with live music helped to bring the film its wide international fame.

3. The word “paradoxes” in the passage is closest in meaning to
 - difficulties
 - accomplishments
 - parallels
 - contradictions
4. Why does the author mention “Japanese benshi” and “original musical compositions”?
 - To suggest that audiences preferred other forms of entertainment to film before the transition to sound in the 1920's
 - To provide examples of some of the first sounds that were recorded for film
 - To indicate some ways in which sound accompanied film before the innovation of sound films in the late 1920s
 - To show how the use of sound in films changed during different historical periods
5. Paragraph 2 suggests which of the following about Eisenstein's film The Battleship Potemkin?
 - The film was not accompanied by sound before its Berlin screening.

-
- The film was unpopular in the Soviet Union before it was screened in Berlin.
 - Eisenstein's film was the first instance of collaboration between a director and a composer.
 - Eisenstein believed that the musical score in a film was as important as dialogue.

Paragraph 3: Beyond that, the triumph of recorded sound has **overshadowed** the rich diversity of technological and aesthetic experiments with the visual image that were going forward simultaneously in the 1920s. New color processes, larger or differently shaped screen sizes, multiple-screen projections, even television, were among the developments invented or tried out during the period, sometimes with startling success. The high costs of converting to sound and the early limitations of sound technology were among the factors that suppressed innovations or retarded advancement in these other areas. The introduction of new screen formats was put off for a quarter century, and color, though utilized over the next two decades for special productions, also did not become a norm until the 1950s.

6. The word "**overshadowed**" in the passage is closest in meaning to

- distracted from
- explained
- conducted
- coordinated with

7. According to paragraph 3, which of the following is NOT true of the technological and aesthetic experiments of the 1920's?

- Because the costs of introducing recorded sound were low, it was the only innovation that was put to use in the 1920's.
- The introduction of recorded sound prevented the development of other technological innovations in the 1920's.
- The new technological and aesthetic developments of the 1920s included the use of color, new screen formats, and television.
- Many of the innovations developed in the 1920s were not widely introduced until as late as the 1950's.

Paragraph 4: **Though it may be difficult to imagine from a later perspective, a strain of critical opinion in the 1920s predicted that sound film would be a technical novelty that would soon fade from sight, just as had many previous attempts, dating well back before the First World War, to link images with recorded sound.** These critics were making a common assumption—that the technological inadequacies of earlier efforts (poor synchronization, weak sound amplification, fragile sound recordings) would invariably occur again. To be sure, their evaluation of the technical flaws in 1920s sound experiments was not so far off the mark, yet they **neglected** to take into account important new forces in the motion picture field that, in a sense, would not take no for an answer.

8. Which of the sentences below best expresses the essential information in the **highlighted sentence** in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- It was difficult for some critics in the 1920s to imagine why the idea of sound film had faded from sight well before the First World War.
- As surprising as it seems today, some critics in the 1920s believed that the new attempts at sound films would fade just as quickly as the attempts made before the First World War.
- Though some early critics thought that sound film would fade, its popularity during the First World War proved that it was not simply a technical novelty.
- Although some critics predicted well before the First World War that sound film would be an important technical innovation, it was not attempted until the 1920s.

9. The word "**neglected**" in the passage is closest in meaning to

-
- failed
 - needed
 - started
 - expected

10. According to paragraph 4, which of the following is true about the technical problems of early sound films?

- Linking images with recorded sound was a larger obstacle than weak sound amplification or fragile sound recordings.
- Sound films in the 1920s were unable to solve the technical flaws found in sound films before the First World War.
- Technical inadequacies occurred less frequently in early sound films than critics suggested.
- Critics assumed that it would be impossible to overcome the technical difficulties experienced with earlier sound films.

Paragraph 5: These forces were the rapidly expanding electronics and telecommunications companies that were developing and linking telephone and wireless technologies in the 1920s. In the United States, they included such firms as American Telephone and Telegraph, General Electric, and Westinghouse. They were interested in all forms of sound technology and all potential avenues for commercial exploitation. Their competition and collaboration were creating the broadcasting industry in the United States, beginning with the introduction of commercial radio programming in the early 1920s. With financial assets considerably greater than those in the motion picture industry, and perhaps a wider vision of the relationships among entertainment and communications media, they revitalized research into recording sound for motion pictures.

11. In paragraph 5, commercial radio programming is best described as the result of

- a financially successful development that enabled large telecommunications firms to weaken their competition.
- the desire of electronics and telecommunications companies to make sound technology profitable
- a major development in the broadcasting industry that occurred before the 1920s
- the cooperation between telecommunications companies and the motion picture industry

Paragraph 6: In 1929 the United States motion picture industry released more than 300 sound films—a rough figure, since a number were silent films with music tracks, or films prepared in dual versions, to take account of the many cinemas not yet wired for sound. At the production level, in the United States the conversion was virtually complete by 1930. In Europe it took a little longer, mainly because there were more small producers for whom the costs of sound were prohibitive, and in other parts of the world problems with rights or access to equipment delayed the shift to sound production for a few more years (though cinemas in major cities may have been wired in order to play foreign sound films). The triumph of sound cinema was swift, complete, and enormously popular.

12. According to paragraph 6, which of the following accounts for the delay in the conversion to sound films in Europe?

- European producers often lacked knowledge about the necessary equipment for the transition to sound films.
- Smaller European producers were often unable to afford to add sound to their films.
- It was often difficult to wire older cinemas in the major cities to play sound films.
- Smaller European producers believed that silent films with music accompaniment were aesthetically superior to sound films.

Paragraph 5: These forces were the rapidly expanding electronics and telecommunications companies that were developing and linking telephone and wireless technologies in the 1920s. In the United States, they included such firms as American Telephone and Telegraph, General Electric, and Westinghouse. They were interested in all forms of sound

technology and all potential avenues for commercial exploitation. Their competition and collaboration were creating the broadcasting industry in the United States, beginning with the introduction of commercial radio programming in the early 1920s. ■With financial assets considerably greater than those in the motion picture industry, and perhaps a wider vision of the relationships among entertainment and communications media, they revitalized research into recording sound for motion pictures.

Paragraph 6: ■In 1929 the United States motion picture industry released more than 300 sound films—a rough figure, since a number were silent films with music tracks, or films prepared in dual versions, to take account of the many cinemas not yet wired for sound. ■At the production level, in the United States the conversion was virtually complete by 1930. ■In Europe it took a little longer, mainly because there were more small producers for whom the costs of sound were prohibitive, and in other parts of the world problems with rights or access to equipment delayed the shift to sound production for a few more years (though cinemas in major cities may have been wired in order to play foreign sound films). The triumph of sound cinema was swift, complete, and enormously popular.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

When this research resulted in the development of vastly improved sound techniques, film studios became convinced of the importance of converting to sound.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

The transition from silent to sound films was the most important development in film history.

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-
-

Answer Choices

○Although music and speech had frequently accompanied film presentations before the 1920s, there was a strong desire to add sound to the films themselves.

○Because of intense interest in developing and introducing sound in film, the general use of other technological innovations being developed in the 1920s was delayed.

○The rapid progress in sound technology made possible by the involvement of telecommunications companies transformed the motion picture industry.

○Japanese filmmakers had developed the technology for creating sound films before directors in Europe and the United States began experimenting with sound.

○Before the First World War, film directors showed little interest in linking images with recorded sound.

○The arrival of sound film technology in the United States forced smaller producers in the motion picture industry out of business.

参考答案:

1. ○2
2. ○1
3. ○4
4. ○3
5. ○1
6. ○1
7. ○1
8. ○2
9. ○1
10. ○4
11. ○2
12. ○2
13. ○2
14. Although music and...
Because of intense...
The rapid progress...

电影声音的演变

电影史上最为重大的一次过渡——电影从无声到有声的跨越发生在 **1920** 年的年底。尽管在戏剧和家庭成像的多元化方面更高级的视觉技术在之前已经发展了十年，依然没有一项类似的发明出现可以被归入这次转折。但是在所有语言中几乎都是这样描述的：电影史上最基本的分水岭就是从默片到电影中语音的加入。

这项历史周期中最基础的标志事件却隐藏在一系列的矛盾中。尽管在几乎每家庄重的剧院中，都有一架钢琴或是其他乐器来给无声的画面提供配乐。在一些实例中，录音时代之前的观众都亲历过那种在电影放映画面的同时旁边是复杂的音效呈现，从日本的 **benshi**(口技)的多点音效的对话演绎到欧洲和美国由管弦交响乐队演奏的专门为电影谱写的曲谱。在柏林，为了能在露天公演的关于苏联的波利金战役，该片导演 **Sergei Eisenstein** 与奥地利的作曲家 **Edmund Meisel** 合作创作与电影相匹配的音效；柏林的放映电影的同时现场演奏音乐让这种电影形式有了国际影响力。

除此之外，录音的辉煌还是使 **20** 世纪 **20** 年代同时百家争鸣的视觉影像方面的技术和审美实验的进步相形见绌。在这期间充斥着新技术的发明或者提出，有一些甚至取得了成功，新的色彩处理，更大的和不同尺寸的屏幕，多屏放映的设计，甚至是电视。声音转化的高成本和早期声音技术的局限成为了抑制或妨碍了这些发明的在其所在领域的优势。新型屏幕设计的引进被推迟了 **25** 年，彩色，在接下来的 **20** 年除了用于特殊生产外，一直到 **1950** 年都还不是标准。

虽然这件在事后很难想象，但是在 **1920** 年一个倾向性的批判性观点预测有声电影仅仅作为一项新奇的技术将会迅速从视线中退去，就像之前的许多试图将图像与录音连接在一起的尝试一样，而这可以追溯到一战之前。这些批评家都持有一个共同的假设，那就是早期成果的技术缺陷仍将不可避免的发声（较差的同步性，微小的音量和断断续续的录音）。为了证实这个观点，他们在 **1920** 年的声音试验中所估测的技术缺陷仍然很大，之后他们就不再对这一电影范畴内的重要力量进行考虑了，从某种意义上说，是不再特意的关注结果。

而在 **1920** 年，这个了力量急速的扩张发展出了连接电话与无线电工艺的电子公司和电子通讯公司。在美国，他们包括了像美国电话与电报这样的公司。通用电器公司，威斯汀豪斯都对声音技术的各种形式和一切商业开发潜力表示感兴趣。在 **1920** 年的早期，这些竞争与合作开创了美国的广播产业，开始引入了商业广播节目。由于财富贡献明显的比那些电影工业的多，而且他们在娱乐与交互媒体之间的关系上有一个更广的看法，他们重启了电影配音的研究。

一个粗略的统计表明，**1929** 年美国的电影产业放出了超过 **300** 部有声电影，同时还有一定数量的默片音轨，或者为电影准备两个版本以照顾一些还没有声音部件的电影院。美国在生产环节的转换最终完成与 **1930** 年。欧洲要稍微晚一点更多是因为他们有很多小型的无法负担音效成本的生产商，另一部分原因是对于专利权和许可领域问题而使设备的配备拖延了声音产业的转变很多年（尽管很多大城市的电影院为了播放外国电影可能已经添加了设备）。有声电影取得了胜利，并迅速，完全，广泛的流行起来

Water in the Desert

Rainfall is not completely absent in desert areas, but it is highly variable. An annual rainfall of four inches is often used to define the limits of a desert. The impact of rainfall upon the surface water and groundwater resources of the desert is greatly influenced by landforms. Flats and depressions where water can collect are common features, but they make up only a small part of the landscape.

Arid lands, surprisingly, contain some of the world's largest river systems, such as the Murray-Darling in Australia, the Rio Grande in North America, the Indus in Asia, and the Nile in Africa. These rivers and river systems are known as "exogenous" because their sources lie outside the arid zone. They are vital for sustaining life in some of the driest parts of the world. For centuries, the annual floods of the Nile, Tigris, and Euphrates, for example, have brought fertile silts and water to the inhabitants of their lower valleys. Today, river discharges are increasingly controlled by human intervention, creating a need for international river-basin agreements. The filling of the Ataturk and other dams in Turkey has drastically reduced flows in the Euphrates, with potentially serious consequences for Syria and Iraq.

The flow of exogenous rivers varies with the season. The desert sections of long rivers respond several months after rain has fallen outside the desert, so that peak flows may be in the dry season. This is useful for irrigation, but the high temperatures, low humidities, and different day lengths of the dry season, compared to the normal growing season, can present difficulties with some crops.

Regularly flowing rivers and streams that originate within arid lands are known as "endogenous." These are generally fed by groundwater springs, and many issue from limestone massifs, such as the Atlas Mountains in Morocco. Basaltic rocks also support springs, notably at the Jabal Al-Arab on the Jordan-Syria border. Endogenous rivers often do not reach the sea but drain into inland basins, where the water evaporates or is lost in the ground. Most desert streambeds are normally dry, but they occasionally receive large flows of water and sediment.

Deserts contain large amounts of groundwater when compared to the amounts they hold in surface stores such as lakes and rivers. But only a small fraction of groundwater enters the hydrological cycle—feeding the flows of streams, maintaining lake levels, and being recharged (or refilled) through surface flows and rainwater. In recent years, groundwater has become an increasingly important source of freshwater for desert dwellers. The United Nations Environment Programme and the World Bank have funded attempts to survey the groundwater resources of arid lands and to develop appropriate extraction techniques. Such programs are much needed because in many arid lands there is only a vague idea of the extent of groundwater resources. It is known, however, that the distribution of groundwater is uneven, and that much of it lies at great depths.

Groundwater is stored in the pore spaces and joints of rocks and unconsolidated (unsolidified) sediments or in the openings widened through fractures and weathering. The water-saturated rock or sediment is known as an "aquifer". Because they are porous, sedimentary rocks, such as sandstones and conglomerates, are important potential sources of groundwater. Large quantities of water may also be stored in limestones when joints and cracks have been enlarged to form cavities. Most limestone and sandstone aquifers are deep and extensive but may contain groundwaters that are not being recharged. Most shallow aquifers in sand and gravel deposits produce lower yields, but they can be rapidly recharged. Some deep aquifers are known as "fossil waters. The term "fossil" describes water that has been present for several thousand years. These aquifers became saturated more than 10,000 years ago and are no longer being recharged.

Water does not remain immobile in an aquifer but can seep out at springs or leak into other aquifers. The rate of movement may be very slow: in the Indus plain, the movement of saline (salty) groundwaters has still not reached equilibrium after 70 years of being tapped. The mineral content of groundwater normally increases with the depth, but even quite shallow aquifers can be highly saline.

Paragraph 1: Rainfall is not completely absent in desert areas, but it is highly variable. An annual rainfall of four inches is often used to define the limits of a desert. The impact of rainfall upon the surface water and groundwater resources of the desert is greatly influenced by landforms. Flats and depressions where water can collect are common features, but they make up only a small part of the landscape.

1. Which of the following statements about annual rainfall can be inferred from paragraph 1?

- ☐ Flat desert areas receive more annual rainfall than desert areas with mountains.
- ☐ Areas that receive more than four inches of rain per year are not considered deserts.
- ☐ Many areas receive less than four inches of annual rainfall, but only a few are deserts.
- ☐ Annual rainfall has no impact on the groundwater resources of desert areas.

Paragraph 2: Arid lands, surprisingly, contain some of the world's largest river systems, such as the Murray-Darling in Australia, the Rio Grande in North America, the Indus in Asia, and the Nile in Africa. These rivers and river systems are known as "exogenous" because their sources lie outside the arid zone. They are vital for sustaining life in some of the driest parts of the world. For centuries, the annual floods of the Nile, Tigris, and Euphrates, for example, have brought fertile silts and water to the inhabitants of their lower valleys. Today, river discharges are increasingly controlled by human intervention, creating a need for international river-basin agreements. The filling of the Ataturk and other dams in Turkey has drastically reduced flows in the Euphrates, with potentially serious consequences for Syria and Iraq.

2. The word "drastically" in the passage is closest in meaning to

- ☐ obviously
- ☐ unfortunately
- ☐ rapidly
- ☐ severely

3. In paragraph 2, why does the author mention the Ataturk and other dams in Turkey?

- ☐ To contrast the Euphrates River with other exogenous rivers
- ☐ To illustrate the technological advances in dam building
- ☐ To argue that dams should not be built on the Euphrates River
- ☐ To support the idea that international river-basin agreements are needed

4. According to paragraph 2, which of the following is true of the Nile River?

- ☐ The Nile's flow in its desert sections is at its lowest during the dry season
- ☐ The Nile's sources are located in one of the most arid zones of the world
- ☐ The Nile's annual floods bring fertile silts and water to its lower valley
- ☐ The Nile's periodic flooding hinders the growth of some crops

Paragraph 5: Deserts contain large amounts of groundwater when compared to the amounts they hold in surface stores such as lakes and rivers. But only a small fraction of groundwater enters the hydrological cycle—feeding the flows of streams, maintaining lake levels, and being recharged (or refilled) through surface flows and rainwater. In recent years, groundwater has become an increasingly important source of freshwater for desert dwellers. The

United Nations Environment Programme and the World Bank have funded attempts to survey the groundwater resources of arid lands and to develop appropriate extraction techniques. Such programs are much needed because in many arid lands there is only a vague idea of the extent of groundwater resources. It is known, however, that the distribution of groundwater is uneven, and that much of it lies at great depths.

5. The word "dwellers" in the passage is closest in meaning to
- settlements
 - farmers
 - tribes
 - inhabitants
6. Paragraph 5 supports all of the following statements about the groundwater in deserts EXCEPT:
- The groundwater is consistently found just below the surface
 - A small part of the groundwater helps maintain lake levels
 - Most of the groundwater is not recharged through surface water
 - The groundwater is increasingly used as a source of freshwater

Paragraph 6: Groundwater is stored in the pore spaces and joints of rocks and unconsolidated (unsolidified) sediments or in the openings widened through fractures and weathering. The water-saturated rock or sediment is known as an "aquifer". Because they are porous, sedimentary rocks, such as sandstones and conglomerates, are important potential sources of groundwater. Large quantities of water may also be stored in limestones when joints and cracks have been enlarged to form cavities. Most limestone and sandstone aquifers are deep and extensive but may contain groundwaters that are not being recharged. Most shallow aquifers in sand and gravel deposits produce lower yields, but they can be rapidly recharged. Some deep aquifers are known as "fossil waters". The term "fossil" describes water that has been present for several thousand years. These aquifers became saturated more than 10,000 years ago and are no longer being recharged.

7. The word "fractures" in the passage is closest in meaning to
- streams
 - cracks
 - storms
 - earthquakes
8. According to paragraph 6, which of the following statements about aquifers in deserts is true?
- Water from limestone and sandstone aquifers is generally better to drink than water from sand and gravel aquifers
 - Sand and gravel aquifers tend to contain less groundwater than limestone or sandstone aquifers
 - Groundwater in deep aquifers is more likely to be recharged than groundwater in shallow aquifers
 - Sedimentary rocks, because they are porous, are not capable of storing large amounts of groundwater
9. According to paragraph 6, the aquifers called fossil waters
- contain fossils that are thousands of years old
 - took more than 10,000 years to become saturated with water
 - have not gained or lost any water for thousands of years
 - have been collecting water for the past 10,000 years

Paragraph 7: Water does not remain immobile in an aquifer but can seep out at springs or leak into other aquifers. The rate of movement may be very slow: in the Indus plain, the movement of saline (salty) groundwaters

has still not reached equilibrium after 70 years of being tapped. The mineral content of groundwater normally increases with the depth, but even quite shallow aquifers can be highly saline.

10. The word “immobile” in the passage is closest in meaning to

- enclosed
- permanent
- motionless
- intact

11. The passage supports which of the following statements about water in the desert?

- The most visible forms of water are not the most widespread forms of water in the desert.
- Groundwater in the desert cannot become a source of drinking water but can be used for irrigation.
- Most of the water in the desert is contained in shallow aquifers that are being rapidly recharged.
- Desert areas that lack endogenous or exogenous rivers and streams cannot support life.

Paragraph 4: Regularly flowing rivers and streams that originate within arid lands are known as "endogenous." These are generally fed by groundwater springs, and many issue from limestone massifs, such as the Atlas Mountains in Morocco. Basaltic rocks also support springs, notably at the Jabal Al-Arab on the Jordan-Syria border. ■Endogenous rivers often do not reach the sea but drain into inland basins, where the water evaporates or is lost in the ground. ■Most desert streambeds are normally dry, but they occasionally receive large flows of water and sediment. ■

Paragraph 5: Deserts contain large amounts of groundwater when compared to the amounts they hold in surface stores such as lakes and rivers. ■But only a small fraction of groundwater enters the hydrological cycle—feeding the flows of streams, maintaining lake levels, and being recharged (or refilled) through surface flows and rainwater. In recent years, groundwater has become an increasingly important source of freshwater for desert dwellers. The United Nations Environment Programme and the World Bank have funded attempts to survey the groundwater resources of arid lands and to develop appropriate extraction techniques. Such programs are much needed because in many arid lands there is only a vague idea of the extent of groundwater resources. It is known, however, that the distribution of groundwater is uneven, and that much of it lies at great depths.

12. Look at the four squares [■] that indicate where the following sentence could be added to the passage

These sudden floods provide important water supplies but can also be highly destructive.

Where would the sentence best fit?

13. **Directions:** Select from the seven sentences below, the two sentences that correctly characterize endogenous rivers and the three sentences that correctly characterize exogenous rivers. Drag each sentence you select into the appropriate column of the table. Two of the sentences will NOT be used. **This question is worth 3 points.**

Endogenous Rivers

-
-

Exogenous Rivers

-
-
-

Answer Choices

- Their water generally comes from groundwater springs.

-
- Their water is saltier than the water of most other rivers.
 - They include some of the world's largest rivers.
 - They originate outside the desert.
 - They often drain into inland basins and do not reach the sea.
 - They contain too much silt to be useful for irrigation.
 - Their water flow generally varies with the season of the year.

参考答案:

1. ○2

2. ○4

3. ○4

4. ○3

5. ○4

6. ○1

7. ○2

8. ○2

9. ○3

10. ○3

11. ○1

12. ○3

13. ○Endogenous Rivers: Their water generally; They often drain

○Exogenous Rivers: They include some; They originate outside; Their water flow

沙漠中的水源

沙漠中并不是完全没有降雨，只不过是变数很大。通常一年以内降雨次数少于 4 次是定义沙漠的限定条件。降水对沙漠地表和地底的水资源的影响很大程度上取决于地貌。平原和洼地是水源聚集的共同地貌特征，不过他们只占地表的很小一部分。

令人惊奇的是，干旱地区往往都存在着世界上最大的河流流域，例如澳大利亚的墨累-达令河，北美洲的格兰德河，亚洲的印度河，以及非洲的尼罗河。这些河流被称作和所在的流域因为河的源头在干旱地区以外而被称为“外流河”。他们对于全世界沙漠地区的生命的存活至关重要。几个世纪以来，尼罗河每年都会定期泛滥。举个例子，幼发拉底河和底格里斯河都会把大量的肥沃的泥沙和水源带给下游低洼地带的居民。现在，河水的流量越来越多的受到人类的干涉，产生了国际性的河流流域的协议。阿卡杜克水坝以及其他一些建在土耳其境内的大坝就极大的减少了幼发拉底河的径流量，潜移默化的给叙利亚河和伊拉克造成了严重的后果。

外流河的径流量通常受季节影响。雨季过后，从外部流入沙漠区域的长河可以持续好几个月，以便保持干旱时节相对较少的径流量。这虽然有助于灌溉，但是高温，低湿，以及干旱时节与众不同的日照时长，相比正常的生长季节也很难栽种一些作物。

通常发源地在干旱地区的河流和溪水被称为“内流河”。它们通常是又地下水的泉眼供给，也一些石灰岩断层中流出的水源供给，例如摩洛哥的阿特拉斯山。**Basaltic** 岩石也提供源头水，比较著名的就是约旦和叙利亚交接的 **Jabal Al-Arab**。内流河通常都不会到达大海而是注入内陆的低地的同时蒸发或者消失在地表。大多数沙漠的河床通常都是干枯的，偶有比较大的径流和沉积物。

相比于地表所的湖泊和河流含有的水量，沙漠中地下水的贮藏量要大得多。不过只有一小部分地下水参与了河流的水循环，保持湖泊的水位，并通过地表径流和降雨进行再造（再注入）。近些年来，地下水作为沙漠住民的活水来源的重要性日益加重。美国国家环境总署和世界银行开始拨款尝试调查统计干旱地区的地下水资源并发展合适的开采技术。像这样的工程非常必要因为在干旱地区对于地下水资源的保有量的概念非常模糊。然而可以确定的是，地下水资源的分布非常不均匀，且大多埋藏在很深的地底。

地下水一般储存在多孔道的地区和连接岩层的未凝固沉积层或者是通过风化和断裂形成的宽阔的孔洞。富含水的岩石或沉积物被称为“蓄水层”。因为沉积岩的多孔性，比如砂岩和砾岩，都是地下水的重要潜在源头。大量的水资源也可能储存在石灰岩中，只要联结和裂口足够大到形成容器。大多数石灰岩和砂岩蓄水层很深且广大，但是保有的水资源是不能再生的。大多数沙石中的较浅的蓄水层只有较小的保有量，但是他们可以迅速的再生。一些深层的蓄水曾被称为“化石水”。“化石”的意思是说这里的水已经被保存了几千年之久。这些蓄水层充满水起码已经 1 万年以上了，而其他他们在短期之内是无法再生的。

水在贮存在蓄水层中不是保持不流动的，而是通过泉眼或是渗漏进入其他的蓄水层，可以流动的比例可能很低；在印度平原，流动的含盐地下水在开发了 70 年以后依旧不能达到平静。矿石中保有的地下水通常会增加蓄水层的深度，但是较浅的安静蓄水层会饱含盐分。

Types of Social Groups

Life places us in a complex web of relationships with other people. Our humanness arises out of these relationships in the course of social interaction. Moreover, our humanness must be sustained through social interaction—and fairly constantly so. When an association continues long enough for two people to become linked together by a relatively stable set of expectations, it is called a relationship.

People are bound within relationships by two types of bonds: expressive ties and instrumental ties. Expressive ties are social links formed when we emotionally invest ourselves in and commit ourselves to other people. Through association with people who are meaningful to us, we achieve a sense of security, love, acceptance, companionship, and personal worth. Instrumental ties are social links formed when we cooperate with other people to achieve some goal. Occasionally, this may mean working with instead of against competitors. More often, we simply cooperate with others to reach some end without endowing the relationship with any larger significance.

Sociologists have built on the distinction between expressive and instrumental ties to distinguish between two types of groups: primary and secondary. A primary group involves two or more people who enjoy a direct, intimate, cohesive relationship with one another. Expressive ties predominate in primary groups; we view the people as ends in themselves and valuable in their own right. A secondary group entails two or more people who are involved in an impersonal relationship and have come together for a specific, practical purpose. Instrumental ties predominate in secondary groups; we perceive people as means to ends rather than as ends in their own right. Sometimes primary group relationships evolve out of secondary group relationships. This happens in many work settings. People on the job often develop close relationships with coworkers as they come to share gripes, jokes, gossip, and satisfactions.

A number of conditions enhance the likelihood that primary groups will arise. First, group size is important. We find it difficult to get to know people personally when they are milling about and dispersed in large groups. In small groups we have a better chance to initiate contact and establish rapport with them. Second, face-to-face contact allows us to size up others. Seeing and talking with one another in close physical proximity makes possible a subtle exchange of ideas and feelings. And third, the probability that we will develop primary group bonds increases as we have frequent and continuous contact. Our ties with people often deepen as we interact with them across time and gradually evolve interlocking habits and interests.

Primary groups are fundamental to us and to society. First, primary groups are critical to the socialization process. Within them, infants and children are introduced to the ways of their society. Such groups are the breeding grounds in which we acquire the norms and values that equip us for social life. Sociologists view primary groups as bridges between individuals and the larger society because they transmit, mediate, and interpret a society's cultural patterns and provide the sense of oneness so critical for social solidarity.

Second, primary groups are fundamental because they provide the settings in which we meet most of our personal needs. Within them, we experience companionship, love, security, and an overall sense of well-being. Not surprisingly, sociologists find that the strength of a group's primary ties has implications for the group's functioning. For example, the stronger the primary group ties of a sports team playing together, the better their record is.

Third, primary groups are fundamental because they serve as powerful instruments for social control. Their members

command and dispense many of the rewards that are so vital to us and that make our lives seem worthwhile. Should the use of rewards fail, members can frequently win by rejecting or threatening to ostracize those who deviate from the primary group's norms. For instance, some social groups employ shunning (a person can remain in the community, but others are forbidden to interact with the person) as a device to bring into line individuals whose behavior goes beyond that allowed by the particular group. Even more important, primary groups define social reality for us by structuring our experiences. By providing us with definitions of situations, they elicit from our behavior that conforms to group-devised meanings. Primary groups, then, serve both as carriers of social norms and as enforcers of them.

Paragraph 1: Life places us in a **complex** web of relationships with other people. Our humanness arises out of these relationships in the course of social interaction. Moreover, our humanness must be sustained through social interaction—and fairly constantly so. When an association continues long enough for two people to become linked together by a relatively stable set of expectations, it is called a relationship.

1. The word "**complex**" in the passage is closest in meaning to
 - delicate
 - elaborate
 - private
 - common
2. According to paragraph 1, which of the following is true of a relationship?
 - It is a structure of associations with many people.
 - It should be studied in the course of a social interaction.
 - It places great demands on people.
 - It develops gradually overtime.

Paragraph 2: People are bound within relationships by two types of bonds: expressive ties and instrumental ties. Expressive ties are social links formed when we emotionally invest ourselves in and commit ourselves to other people. Through association with people who are meaningful to us, we achieve a sense of security, love, acceptance, companionship, and personal worth. Instrumental ties are social links formed when we cooperate with other people to achieve some goal. Occasionally, this may mean working with instead of against competitors. More often, we simply cooperate with others to reach some end without **endowing** the relationship with any larger significance.

3. The word **endowing** in the passage is closest in meaning to
 - leaving
 - exposing
 - providing
 - understanding
4. Which of the following can be inferred about instrumental ties from the author's mention of working with competitors in paragraph 2?
 - Instrumental ties can develop even in situations in which people would normally not cooperate.
 - Instrumental ties require as much emotional investment as expressive ties.
 - Instrumental ties involve security, love, and acceptance.
 - Instrumental ties should be expected to be significant.

Paragraph 3: Sociologists have built on the distinction between expressive and instrumental ties to distinguish between two types of groups: primary and secondary. A primary group involves two or more people who enjoy a direct,

intimate, cohesive relationship with one another. Expressive ties predominate in primary groups; we view the people as ends in themselves and valuable in their own right. A secondary group entails two or more people who are involved in an impersonal relationship and have come together for a specific, practical purpose. Instrumental ties predominate in secondary groups; we perceive people as means to ends rather than as ends in their own right. Sometimes primary group relationships evolve out of secondary group relationships. This happens in many work settings. People on the job often develop close relationships with coworkers as they come to share gripes, jokes, gossip, and satisfactions.

5. According to paragraph 3, what do sociologists see as the main difference between primary and secondary groups?

- Primary groups consist of people working together, while secondary groups exist outside of work settings.
- In primary groups people are seen as means, while in secondary groups people are seen as ends.
- Primary groups involve personal relationships, while secondary groups are mainly practical in purpose.
- Primary groups are generally small, while secondary groups often contain more than two people.

6. Which of the following can be inferred from the author's claim in paragraph 3 that primary group relationships sometimes evolve out of secondary group relationships?

- Secondary group relationships begin by being primary group relationships.
- A secondary group relationship that is highly visible quickly becomes a primary group relationship.
- Sociologists believe that only primary group relationships are important to society.
- Even in secondary groups, frequent communication serves to bring people into close relationships.

Paragraph 4: A number of conditions enhance the likelihood that primary groups will arise. First, group size is important. We find it difficult to get to know people personally when they are milling about and dispersed in large groups. In small groups we have a better chance to initiate contact and establish rapport with them. Second, face-to-face contact allows us to size up others. Seeing and talking with one another in close physical proximity makes possible a subtle exchange of ideas and feelings. And third, the probability that we will develop primary group bonds increases as we have frequent and continuous contact. Our ties with people often deepen as we interact with them across time and gradually evolve interlocking habits and interests.

7. The phrase "size up" in the passage is closest in meaning to

- enlarge
- evaluate
- impress
- accept

Paragraph 5: Primary groups are fundamental to us and to society. First, primary groups are critical to the socialization process. Within them, infants and children are introduced to the ways of their society. Such groups are the breeding grounds in which we acquire the norms and values that equip us for social life. Sociologists view primary groups as bridges between individuals and the larger society because they transmit, mediate, and interpret a society's cultural patterns and provide the sense of oneness so critical for social solidarity.

8. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Sociologists think that cultural patterns establish connections between the individual and the larger society.
- Sociologists believe that individuals with a sense of oneness bridge the gap between society and primary groups.
- Sociologists think primary groups contribute to social solidarity because they help maintain a society's cultural patterns.

-
- Sociologists believe that the cultural patterns that provide social solidarity arise as bridges from primary groups.

9. This passage is developed primarily by

- drawing comparisons between theory and practice
- presenting two opposing theories
- defining important concepts and providing examples of them
- discussing causes and their effects

Paragraph 7: Third, primary groups are fundamental because they serve as powerful instruments for social control. Their members command and dispense many of the rewards that are so vital to us and that make our lives seem worthwhile. Should the use of rewards fail, members can frequently win by rejecting or threatening to ostracize those who deviate from the primary group's norms. For instance, some social groups employ shunning (a person can remain in the community, but others are forbidden to interact with the person) as a device to bring into line individuals whose behavior goes beyond that allowed by the particular group. Even more important, primary groups define social reality for us by structuring our experiences. By providing us with definitions of situations, they elicit from our behavior that conforms to group-devised meanings. Primary groups, then, serve both as carriers of social norms and as enforcers of them.

10. The word "deviate" in the passage is closest in meaning to

- detract
- advance
- select
- depart

11. According to paragraph 7, why would a social group use shunning?

- To enforce practice of the kinds of behavior acceptable to the group
- To discourage offending individuals from remaining in the group
- To commend and reward the behavior of the other members of the group
- To decide which behavioral norms should be passed on to the next generation

Paragraph 6: Second, primary groups are fundamental because they provide the settings in which we meet most of our personal needs. ■ Within them, we experience companionship, love, security, and an overall sense of well-being. ■ Not surprisingly, sociologists find that the strength of a group's primary ties has implications for the group's functioning. ■ For example, the stronger the primary group ties of a sports team playing together, the better their record is. ■

12. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

People who do not live alone, for example, tend to make healthier life choices and develop fewer pathologies than people who live by themselves.

Where would the sentence best fit?

13. **Directions:** Complete the table below by selecting three answer choices that are characteristics of primary groups and two answer choices that are characteristics of secondary groups. **This question is worth 3 points.**

Primary Groups

-
-

-

Secondary Groups

-

-

Answer Choices

- Developing socially acceptable behavior
- Working together against competitors
- Experiencing pressure from outside forces
- Viewing people as a means to an end
- Existing for practical purposes
- Providing meaning for life situations
- Involving close relationships

参考答案:

1. ○2
2. ○4
3. ○3
4. ○1
5. ○3
6. ○4
7. ○2
8. ○3
9. ○3
10. ○4
11. ○1
12. ○2

13.○Primary Groups: Developing socially acceptable behavior; Providing meaning for life situations; Involving close relationships

○Secondary Groups: Viewing people as a means to an end; Existing for practical purposes

社会群组的类型

我们和其他人一起生活在一个复杂的关系网中。我们的人性就产生于这种社会性的互动关系中，与此同时，我们的人性也必须通过经常性的社会互动才能得以保存。当两个人在比较稳定的期望值下的交流时间足够长并且形成一种联系时，这种联系就可以称为关系

人与人之间的关系可以分为两种：情感纽带和工具纽带。情感纽带在当我们感性的与他人交流时形成的一种社会联系。通过和对我们来说十分重要的人交流从而得到的安全感，爱情，认可，友谊和个人价值等一系列情感。工具纽带是但我们为了达到一些目标而与他人进行合作时产生的社会联系方式。有些时候，这也许意味着变相与竞争者一起共事。更多的时候我们没有发展出任何更有意义的关系而只是简单的与其他人合作并走向终点。

社会学家基于感情纽带与工具纽带的特征对两者进行了区分定义并划分出两种类型的群组：主要群组和次要群组。一个主要社群包含两个或更多人，他们都喜欢直接，亲密的，有粘性的与他人的关系。感情纽带在主要社群中起主导作用。我们审视人的时候是在他们生命的走到尽头的时候，还有他们的个人价值。次要群组也需要两个以上的不过是因为非个人关系而且聚到一起都是为了一个具体的，特定的目标。而工具纽带就在其中起了重要的作用。我们关注人们在最后的价值要比他们自己的权利要多。有时主要群组的关系也会在次要群组中演化出来。这种现象一般发生在一些工作安排当中。人们在共同合作中会相互发牢骚，开玩笑，传八卦以及满足感，由此依旧发展出了亲近的关系。

在一些情况下主要群组的扩大会导致生活习惯的增加。首先，群组的规模非常重要。当一个人身处并消失在一个巨大的群体里时，我们很难了解到他。但是在小型的群组里我们就能获得更多的机会开展联系并建立关系。第二点，面对面的久留能让我们更好的审视他们。与另一个人近距离的观察和交谈可以有更多的机会交流细微的感情与观念。第三点，我们发展主要群组的可能性和我们经常性的持续的交流息息相关。我们与其他人的纽带经常随着我们与其他人的互动而加深并演化为深层的相关联的习惯和兴趣。

主要群组是人与人之间乃至整个社会的基础。第一，主要群组是社会化进程的推动力量。在主要群组里，婴儿与孩童可以了解他们所处社会的种种处世办法。像这样的群组一般会产生于我们与我们的社会生活所需要的标准和价值观念体系内。社会学家通过对主要群组的观察将其比喻为独立的个体与整个社会之间的桥梁，因为他能转换，能调节，能解释一个社会文化符号并且能够表达个体的感情并最终将二者合而为一。

第二点，主要群组之所以是基础是因为它能提供我们解决的各人需求的种种方法。在主要群组中，我们友谊，经历爱情，获得依靠以及所有我们所希望得到的情感。毫无疑问社会学家发现一个群组的主要纽带的强弱往往暗示着这个群组的功能。比如，一群在一起比赛的队伍的主要群体纽带越强，他们的成绩就越好。

第三点，主要群组之所以是基础还因为他们提供强有力的社会统治工具。这之中的成员调集并分配能够维持我们的生存的极其重要的资源。如果不能分配无效，那么群组成员就会通过拒绝或是指控来摒弃那些背离组织标准的人，比如一些社会群组雇佣仲裁者（一种可以呆在群体中，但是却不能与群体成员互动的人）像一部机器一样的给那些习惯于超过这个群组所允许的范围行动的个体制定标准。更重要的是，主要群组通过构筑我们的经验来为我们的社会现实下定义。

通过向我们提供对我们的处境的定义，他们可以得出我们所遵守的组织所设计的意义的习性。主要群组，甚至会同时制定社会准则并不断的完善这些准则。

Biological Clocks

Survival and successful reproduction usually require the activities of animals to be coordinated with predictable events around them. Consequently, the timing and rhythms of biological functions must closely match periodic events like the solar day, the tides, the lunar cycle, and the seasons. The relations between animal activity and these periods, particularly for the daily rhythms, have been of such interest and importance that a huge amount of work has been done on them and the special research field of chronobiology has emerged. Normally, the constantly changing levels of an animal's activity—sleeping, feeding, moving, reproducing, metabolizing, and producing enzymes and hormones, for example—are well coordinated with environmental rhythms, but the key question is whether the animal's schedule is driven by external cues, such as sunrise or sunset, or is instead dependent somehow on internal timers that themselves generate the observed biological rhythms. Almost universally, biologists accept the idea that all eukaryotes (a category that includes most organisms except bacteria and certain algae) have internal clocks. By isolating organisms completely from external periodic cues, biologists learned that organisms have internal clocks. For instance, apparently normal daily periods of biological activity were maintained for about a week by the fungus *Neurospora* when it was intentionally isolated from all geophysical timing cues while orbiting in a space shuttle. The continuation of biological rhythms in an organism without external cues attests to its having an internal clock.

When crayfish are kept continuously in the dark, even for four to five months, their compound eyes continue to adjust on a daily schedule for daytime and nighttime vision. Horseshoe crabs kept in the dark continuously for a year were found to maintain a persistent rhythm of brain activity that similarly adapts their eyes on a daily schedule for bright or for weak light. Like almost all daily cycles of animals deprived of environmental cues, those measured for the horseshoe crabs in these conditions were not exactly 24 hours. Such a rhythm whose period is approximately—but not exactly—a day is called circadian. For different individual horseshoe crabs, the circadian period ranged from 22.2 to 25.5 hours. A particular animal typically maintains its own characteristic cycle duration with great precision for many days. Indeed, stability of the biological clock's period is one of its major features, even when the organism's environment is subjected to considerable changes in factors, such as temperature, that would be expected to affect biological activity strongly. Further evidence for persistent internal rhythms appears when the usual external cycles are shifted—either experimentally or by rapid east-west travel over great distances. Typically, the animal's daily internally generated cycle of activity continues without change. As a result, its activities are shifted relative to the external cycle of the new environment. The disorienting effects of this mismatch between external time cues and internal schedules may persist, like our jet lag, for several days or weeks until certain cues such as the daylight/darkness cycle reset the organism's clock to synchronize with the daily rhythm of the new environment.

Animals need natural periodic signals like sunrise to maintain a cycle whose period is precisely 24 hours. Such an external cue not only coordinates an animal's daily rhythms with particular features of the local solar day but also—because it normally does so day after day—seems to keep the internal clock's period close to that of Earth's rotation. Yet despite this synchronization of the period of the internal cycle, the animal's timer itself continues to have its own genetically built-in period close to, but different from, 24 hours. Without the external cue, the difference accumulates and so the internally regulated activities of the biological day drift continuously, like the tides, in relation to the solar day. This drift has been studied extensively in many animals and in biological activities ranging from the hatching of fruit fly eggs to wheel running by squirrels. Light has a predominating influence in setting the clock. Even a fifteen-minute burst of light in otherwise sustained darkness can reset an animal's circadian rhythm. Normally, internal rhythms are kept in step by regular environmental cycles. For instance, if a homing pigeon is to navigate with its Sun compass, its clock must be properly set by cues provided by the daylight/darkness cycle.

Paragraph 1: Survival and successful reproduction usually require the activities of animals to be coordinated with predictable events around them. Consequently, the timing and rhythms of biological functions must closely match periodic events like the solar day, the tides, the lunar cycle, and the seasons. The relations between animal activity and these periods, particularly for the daily rhythms, have been of such interest and importance that a huge amount of work has been done on them and the special research field of chronobiology has emerged. Normally, the constantly changing levels of an animal's activity—sleeping, feeding, moving, reproducing, metabolizing, and producing enzymes and hormones, for example—are well coordinated with environmental rhythms, but the key question is whether the animal's schedule is driven by external cues, such as sunrise or sunset, or is instead dependent somehow on internal timers that themselves generate the observed biological rhythms. Almost universally, biologists accept the idea that all eukaryotes (a category that includes most organisms except bacteria and certain algae) have internal clocks. By isolating organisms completely from external periodic cues, biologists learned that organisms have internal clocks. For instance, apparently normal daily periods of biological activity were maintained for about a week by the fungus *Neurospora* when it was intentionally isolated from all geophysical timing cues while orbiting in a space shuttle. The continuation of biological rhythms in an organism without external cues attests to its having an internal clock.

1. The word "Consequently" in the passage is closest in meaning to
 - Therefore
 - Additionally
 - Nevertheless
 - Moreover
2. In paragraph 1, the experiment on the fungus *Neurospora* is mentioned to illustrate
 - the existence of weekly periods of activity as well as daily ones
 - the finding of evidence that organisms have internal clocks
 - the effect of space on the internal clocks of organisms
 - the isolation of one part of an organism's cycle for study
3. According to paragraph 1, all the following are generally assumed to be true EXCEPT:
 - It is important for animals' daily activities to be coordinated with recurring events in their environment.
 - Eukaryotes have internal clocks.
 - The relationship between biological function and environmental cycles is a topic of intense research.
 - Animals' daily rhythms are more dependent on external cues than on internal clocks.

Paragraph 2: When crayfish are kept continuously in the dark, even for four to five months, their compound eyes continue to adjust on a daily schedule for daytime and nighttime vision. Horseshoe crabs kept in the dark continuously for a year were found to maintain a persistent rhythm of brain activity that similarly adapts their eyes on a daily schedule for bright or for weak light. Like almost all daily cycles of animals deprived of environmental cues, those measured for the horseshoe crabs in these conditions were not exactly 24 hours. Such a rhythm whose period is approximately—but not exactly—a day is called circadian. For different individual horseshoe crabs, the circadian period ranged from 22.2 to 25.5 hours. A particular animal typically maintains its own characteristic cycle duration with great precision for many days. Indeed, stability of the biological clock's period is one of its major features, even when the organism's environment is subjected to considerable changes in factors, such as temperature, that would be expected to affect biological activity strongly. Further evidence for persistent internal rhythms appears when the usual external cycles are shifted—either experimentally or by rapid east-west travel over great distances. Typically, the animal's daily internally generated cycle of activity continues without change. As a result, its activities are shifted relative to the external cycle of the new environment. The disorienting effects of this mismatch between external time cues and internal schedules may persist, like our jet lag, for several days or weeks until certain cues

such as the daylight/darkness cycle reset the organism's clock to synchronize with the daily rhythm of the new environment.

4. The word "persistent" in the passage is closest in meaning to

- adjusted
- strong
- enduring
- predicted

5. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Stability, a feature of the biological clock's period, depends on changeable factors such as temperature.
- A major feature of the biological clock is that its period does not change despite significant changes in the environment.
- A factor such as temperature is an important feature in the establishment of the biological clock's period.
- Biological activity is not strongly affected by changes in temperature.

6. According to paragraph 2, which of the following is true about the circadian periods of animals deprived of environmental cues?

- They have the same length as the daily activity cycles of animals that are not deprived of such cues.
- They can vary significantly from day to day.
- They are not the same for all members of a single species.
- They become longer over time.

7. According to paragraph 2, what will an animal experience when its internal rhythms no longer correspond with the daily cycle of the environment?

- Disorientation
- Change in period of the internal rhythms
- Reversal of day and night activities increased
- Sensitivity to environmental factors

8. In paragraph 2, the author provides evidence for the role of biological clocks by

- listing the daily activities of an animal's cycle: sleeping, feeding, moving, reproducing, metabolizing, and producing enzymes and hormones
- describing the process of establishing the period of a biological clock
- presenting cases in which an animal's daily schedule remained stable despite lack of environmental cues
- contrasting animals whose daily schedules fluctuate with those of animals whose schedules are constant

9. The word "duration" in the passage is closest in meaning to

- length
- feature
- process
- repetition

10. In paragraph 2, why does the author mention that the period for different horseshoe crabs ranges from 22.2 to 25.5 hours?

- To illustrate that an animal's internal clock seldom has a 24-hour cycle
- To argue that different horseshoe crabs will shift from daytime to nighttime vision at different times

-
- To illustrate the approximate range of the circadian rhythm of all animals
 - To support the idea that external cues are the only factors affecting an animal's periodic behavior

Paragraph 3: Animals need natural periodic signals like sunrise to maintain a cycle whose period is precisely 24 hours. Such an external cue not only coordinates an animal's daily rhythms with particular features of the local solar day but also—because it normally does so day after day—seems to keep the internal clock's period close to that of Earth's rotation. Yet despite this synchronization of the period of the internal cycle, the animal's timer itself continues to have its own genetically built-in period close to, but different from, 24 hours. Without the external cue, the difference accumulates and so the internally regulated activities of the biological day drift continuously, like the tides, in relation to the solar day. This drift has been studied extensively in many animals and in biological activities ranging from the hatching of fruit fly eggs to wheel running by squirrels. Light has a predominating influence in setting the clock. Even a fifteen-minute burst of light in otherwise sustained darkness can reset an animal's circadian rhythm. Normally, internal rhythms are kept in step by regular environmental cycles. For instance, if a homing pigeon is to navigate with its Sun compass, its clock must be properly set by cues provided by the daylight/darkness cycle.

11. The word "it" in the passage refers to

- an external cue such as sunrise
- the daily rhythm of an animal
- the local solar day
- a cycle whose period is precisely 24 hours

12. The word "sustained" in the passage is closest in meaning to

- intense
- uninterrupted
- natural
- periodic

Paragraph 3: Animals need natural periodic signals like sunrise to maintain a cycle whose period is precisely 24 hours. ■Such an external cue not only coordinates an animal's daily rhythms with particular features of the local solar day but also—because it normally does so day after day—seems to keep the internal clock's period close to that of Earth's rotation. ■Yet despite this synchronization of the period of the internal cycle, the animal's timer itself continues to have its own genetically built-in period close to, but different from, 24 hours. ■Without the external cue, the difference accumulates and so the internally regulated activities of the biological day drift continuously, like the tides, in relation to the solar day. ■This drift has been studied extensively in many animals and in biological activities ranging from the hatching of fruit fly eggs to wheel running by squirrels. Light has a predominating influence in setting the clock. Even a fifteen-minute burst of light in otherwise sustained darkness can reset an animal's circadian rhythm. Normally, internal rhythms are kept in step by regular environmental cycles. For instance, if a homing pigeon is to navigate with its Sun compass, its clock must be properly set by cues provided by the daylight/darkness cycle.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Because the internal signals that regulate waking and going to sleep tend to align themselves with these external cues, the external clock appears to dominate the internal clock.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

The activity of animals is usually coordinated with periodically recurring events in the environment.

-
-
-

Answer Choices

○Most animals survive and reproduce successfully without coordinating their activities to external environmental rhythms.

○The circadian period of an animal's internal clock is genetically determined and basically unchangeable.

○Environmental cues such as a change in temperature are enough to reset an animal's clock.

○Animals have internal clocks that influence their activities even when environmental cues are absent.

○Animals are less affected by large differences between their internal rhythms and the local solar day than are humans.

○Because an animal's internal clock does not operate on a 24-hour cycle, environmental stimuli are needed to keep the biological day aligned with the solar day.

参考答案:

1. ○1
2. ○2
3. ○4
4. ○3
5. ○2
6. ○3
7. ○1
- 8.○3
9. ○1
10. ○1
11. ○1
12. ○2
13. ○2
14. The circadian period...
Animals have internal...
Because an animal's...

生物钟

生存与繁衍通常需要动物的活动与他们所能预料到的事件同步。生物的计时与交替循环的机能也就理所应当的必须与像昼夜交替，潮涨潮落，月圆月缺和四季更迭这样的周期性事件保持大体的一致。动物的活动与这些周期之间的关系，特别是与昼夜交替之间的关系，因为大量的工作都是在其基础之上完成的而拥有巨大的吸引力和重要性，从而也延伸出了一个新的研究领域：生物钟学科。通常意义上讲，动物活动的经常性转变——例如，睡觉，喂食，活动，繁殖和产生酶与荷尔蒙，都是与环境的循环同步的，但是关键在于，动物的作息是否是由外界条件驱使，比如日出日落，又或者是受他们自身产生并遵循的内在生物循环，生物学家普遍接受的观点是所有的多细胞生物（除了细菌与一些海藻以外的绝大多数物种）都有内在钟。通过将生物与外界的周期性暗示完全隔离，生物学家们发现生物确实有内在钟。举个例子，通过一种叫脉孢菌的细菌清晰的证明了在绕地球公转的太空飞船中完全与所有地理事件信号隔离的情况下，所有的生物日常活动周期可以持续大概一个礼拜左右。这种在没有外界信号的时候生物循环的延续性证明生物是具有内在钟的。

小龙虾在黑暗中持续的活动哪怕是四五个月，他们的复眼也仍然继续按日常循环的昼与夜来调节视野。马蹄蟹可以在黑暗中保持一年的连续性大脑周期活动来使他们的眼睛适应日常交替的高光与弱光的周期一致。如同大多数的日循环动物被剥夺了外界暗示一样，对于马蹄蟹来说在这种无光的情况下他们的时长也不一定是准时的 **24** 小时。这种和一天的循环周期很接近但不精确同步的循环叫做生理节奏。不同的马蹄蟹个体，生理节奏在也 **22.2** 小时到 **25.5** 小时之间。一种特定的动物会将其特有的精密循环长度保持很多天。确实，稳定性是生物钟最重要的特性之一，即使是在生物所处的环境的诸多要素中发生了相当大的改变，例如温度，不能对生物钟产生很大影响。关于生物钟持续性更进一步的证据出现在当正常的外部循环发生突变，如科研或者从东到西急速的长途旅行。

动物的内在以天为单位的典型周期循环活动仍然会继续而不会有什么改变。但与此同时，生物的活动与却会因为与新环境中的外部循环相关联而改变。外部时间与内在循环的持续性不同步而产生的错乱反应，比如我们的时差综合症，要耗费几天或者几个星期直到不变信号比如白天黑夜循环重新设定生物钟并将其同步到新环境的日常循环中。

动物需要例如日出这样的自然界的周期信号来保持他们的循环周期为精准的 **24** 小时。这类的外部信号不仅可以通过特定的标志——当地的白昼同步动物的每日循环，而且也正是因为这些活动日复一日的保持着内在钟的周期接近地球自转。但是尽管有这些内在钟的同步，动物的计时器仍然继续靠着它构筑在遗传上的区别于外部的周期，近似 **24** 小时。在没有外部信号时，不同的收集方式和这种内在的调节机制作用下的生物活动保持这继续，比如潮汐，就与太阳有关系。这种调节被广泛的研究在许多动物和生物活动调节从孵化的果蝇卵到松树的滚轮跑。光在调节生物钟里占主导位置。即使是 **15** 分钟的强光在黑暗中发生也可以改变动物的生理节奏。通常来讲，内在循环会紧随环境循环的步伐。举个例子，如果一个家鸽在太阳的指引下飞行，那么它的生物钟就必须严格遵守日出日落的循环。

Methods of Studying Infant Perception

In the study of perceptual abilities of infants, a number of techniques are used to determine infants' responses to various stimuli. Because they cannot verbalize or fill out questionnaires, indirect techniques of naturalistic observation are used as the primary means of determining what infants can see, hear, feel, and so forth. Each of these methods compares an infant's state prior to the introduction of a stimulus with its state during or immediately following the stimulus. The difference between the two measures provides the researcher with an indication of the level and duration of the response to the stimulus. For example, if a uniformly moving pattern of some sort is passed across the visual field of a neonate (newborn), repetitive following movements of the eye occur. The occurrence of these eye movements provides evidence that the moving pattern is perceived at some level by the newborn. Similarly, changes in the infant's general level of motor activity —turning the head, blinking the eyes, crying, and so forth — have been used by researchers as visual indicators of the infant's perceptual abilities.

Such techniques, however, have limitations. First, the observation may be unreliable in that two or more observers may not agree that the particular response occurred, or to what degree it occurred. Second, responses are difficult to quantify. Often the rapid and diffuse movements of the infant make it difficult to get an accurate record of the number of responses. The third, and most potent, limitation is that it is not possible to be certain that the infant's response was due to the stimulus presented or to a change from no stimulus to a stimulus. The infant may be responding to aspects of the stimulus different than those identified by the investigator. Therefore, when observational assessment is used as a technique for studying infant perceptual abilities, care must be taken not to overgeneralize from the data or to rely on one or two studies as conclusive evidence of a particular perceptual ability of the infant.

Observational assessment techniques have become much more sophisticated, reducing the limitations just presented. Film analysis of the infant's responses, heart and respiration rate monitors, and nonnutritive sucking devices are used as effective tools in understanding infant perception. Film analysis permits researchers to carefully study the infant's responses over and over and in slow motion. Precise measurements can be made of the length and frequency of the infant's attention between two stimuli. Heart and respiration monitors provide the investigator with the number of heartbeats or breaths taken when a new stimulus is presented. Numerical increases are used as quantifiable indicators of heightened interest in the new stimulus. Increases in nonnutritive sucking were first used as an assessment measure by researchers in 1969. They devised an apparatus that connected a baby's pacifier to a counting device. As stimuli were presented, changes in the infant's sucking behavior were recorded. Increases in the number of sucks were used as an indicator of the infant's attention to or preference for a given visual display.

Two additional techniques of studying infant perception have come into vogue. The first is the habituation-dishabituation technique, in which a single stimulus is presented repeatedly to the infant until there is a measurable decline (habituation) in whatever attending behavior is being observed. At that point a new stimulus is presented, and any recovery (dishabituation) in responsiveness is recorded. If the infant fails to dishabituate and continues to show habituation with the new stimulus, it is assumed that the baby is unable to perceive the new stimulus as different. The habituation-dishabituation paradigm has been used most extensively with studies of auditory and olfactory perception in infants. The second technique relies on evoked potentials, which are electrical brain responses that may be related to a particular stimulus because of where they originate. Changes in the electrical pattern of the brain indicate that the stimulus is getting through to the infant's central nervous system and eliciting some form of response.

Each of the preceding techniques provides the researcher with evidence that the infant can detect or

discriminate between stimuli. With these sophisticated observational assessment and electro-physiological measures, we know that the neonate of only a few days is far more perceptive than previously suspected. However, these measures are only "indirect" indicators of the infant's perceptual abilities.

Paragraph 1: In the study of perceptual abilities of infants, a number of techniques are used to determine infants' responses to various stimuli. Because they cannot verbalize or fill out questionnaires, indirect techniques of naturalistic observation are used as the primary means of determining what infants can see, hear, feel, and so forth. Each of these methods compares an infant's state prior to the introduction of a stimulus with its state during or immediately following the stimulus. The difference between the two measures provides the researcher with an indication of the level and duration of the response to the stimulus. For example, if a uniformly moving pattern of some sort is passed across the visual field of a neonate (newborn), repetitive following movements of the eye occur. The occurrence of these eye movements provides evidence that the moving pattern is perceived at some level by the newborn. Similarly, changes in the infant's general level of motor activity —turning the head, blinking the eyes, crying, and so forth — have been used by researchers as visual indicators of the infant's perceptual abilities.

1. Paragraph 1 indicates that researchers use indirect methods primarily to observe the
 - range of motor activity in neonates
 - frequency and duration of various stimuli
 - change in an infant's state following the introduction of a stimulus
 - range of an infant's visual field
2. The word uniformly in the passage is closest in meaning to
 - clearly
 - quickly
 - consistently
 - occasionally
3. Why does the author mention repetitive following movements of the eye?
 - To identify a response that indicates a neonate's perception of a stimulus
 - To explain why a neonate is capable of responding to stimuli only through repetitive movements
 - To argue that motor activity in a neonate may be random and unrelated to stimuli
 - To emphasize that responses to stimuli vary in infants according to age

Paragraph 2: Such techniques, however, have limitations. First, the observation may be unreliable in that two or more observers may not agree that the particular response occurred, or to what degree it occurred. Second, responses are difficult to quantify. Often the rapid and diffuse movements of the infant make it difficult to get an accurate record of the number of responses. The third, and most potent, limitation is that it is not possible to be certain that the infant's response was due to the stimulus presented or to a change from no stimulus to a stimulus. The infant may be responding to aspects of the stimulus different than those identified by the investigator. Therefore, when observational assessment is used as a technique for studying infant perceptual abilities, care must be taken not to overgeneralize from the data or to rely on one or two studies as conclusive evidence of a particular perceptual ability of the infant.

4. Which of the following is NOT mentioned in paragraph 2 as a problem in using the technique of direct observation?
 - It is impossible to be certain of the actual cause of an infant's response.
 - Infants' responses, which occur quickly and diffusely, are often difficult to measure.

-
- Infants do not respond well to stimuli presented in an unnatural laboratory setting.
 - It may be difficult for observers to agree on the presence or the degree of a response.

5. The word potent in the passage is closest in meaning to

- artificial
- powerful
- common
- similar

6. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Researchers using observational assessment techniques on infants must not overgeneralize and must base their conclusions on data from many studies.
- On the basis of the data from one or two studies, it seems that some infants develop a particular perceptual ability not observed in others.
- To use data from one or two studies on infant's perceptual abilities, it is necessary to use techniques that will provide conclusive evidence.
- When researchers fail to make generalizations from their studies, their observed data is often inconclusive.

Paragraph 3: Observational assessment techniques have become much more sophisticated, reducing the limitations just presented. Film analysis of the infant's responses, heart and respiration rate monitors, and nonnutritive sucking devices are used as effective tools in understanding infant perception. Film analysis permits researchers to carefully study the infant's responses over and over and in slow motion. Precise measurements can be made of the length and frequency of the infant's attention between two stimuli. Heart and respiration monitors provide the investigator with the number of heartbeats or breaths taken when a new stimulus is presented. Numerical increases are used as quantifiable indicators of heightened interest in the new stimulus. Increases in nonnutritive sucking were first used as an assessment measure by researchers in 1969. They devised an apparatus that connected a baby's pacifier to a counting device. As stimuli were presented, changes in the infant's sucking behavior were recorded. Increases in the number of sucks were used as an indicator of the infant's attention to or preference for a given visual display.

7. What is the author's primary purpose in paragraph 3?

- To explain why researchers must conduct more than one type of study when they are attempting to understand infant perception
- To describe new techniques for observing infant perception that overcome problems identified in the previous paragraph
- To present and evaluate the conclusions of various studies on infant perception
- To point out the strengths and weaknesses of three new methods for quantifying an infant's reaction to stimuli

8. The word quantifiable in the passage is closest in meaning to

- visual
- permanent
- meaningful
- measurable

9. Paragraph 3 mentions all of the following as indications of an infant's heightened interest in a new stimulus EXCEPT an increase in

-
- sucking behavior
 - heart rate
 - the number of breaths taken
 - eye movements

Paragraph 4: Two additional techniques of studying infant perception have come into vogue. The first is the habituation-dishabituation technique, in which a single stimulus is presented repeatedly to the infant until there is a measurable decline (habituation) in whatever attending behavior is being observed. At that point a new stimulus is presented, and any recovery (dishabituation) in responsiveness is recorded. If the infant fails to dishabituate and continues to show habituation with the new stimulus, it is assumed that the baby is unable to perceive the new stimulus as different. The habituation-dishabituation paradigm has been used most extensively with studies of auditory and olfactory perception in infants. The second technique relies on evoked potentials, which are electrical brain responses that may be related to a particular stimulus because of where they originate. Changes in the electrical pattern of the brain indicate that the stimulus is getting through to the infant's central nervous system and eliciting some form of response.

10. According to paragraph 4, which of the following leads to the conclusion that infants are able to differentiate between stimuli in a habituation-dishabituation study?

- Dishabituation occurs with the introduction of a new stimulus.
- Electrical responses in the infant's brain decline with each new stimulus.
- Habituation is continued with the introduction of a new stimulus.
- The infant displays little change in electrical brain responses.

11. In paragraph 4, what does the author suggest about the way an infant's brain perceives stimuli?

- An infant's potential to respond to a stimulus may be related to the size of its brain.
- Changes in the electrical patterns of an infant's brain are difficult to detect.
- Different areas of an infant's brain respond to different types of stimuli.
- An infant is unable to perceive more than one stimulus at a time.

Paragraph 5: Each of the preceding techniques provides the researcher with evidence that the infant can detect or discriminate between stimuli. With these sophisticated observational assessment and electro-physiological measures, we know that the neonate of only a few days is far more perceptive than previously suspected. However, these measures are only "indirect" indicators of the infant's perceptual abilities.

12. Paragraph 5 indicates that researchers who used the techniques described in the passage discovered that

- infants find it difficult to perceive some types of stimuli
- neonates of only a few days cannot yet discriminate between stimuli
- observational assessment is less useful for studying infant perception than researchers previously believed
- a neonate is able to perceive stimuli better than researchers once thought

Paragraph 3: Observational assessment techniques have become much more sophisticated, reducing the limitations just presented. Film analysis of the infant's responses, heart and respiration rate monitors, and nonnutritive sucking devices are used as effective tools in understanding infant perception. ■Film analysis permits researchers to carefully study the infant's responses over and over and in slow motion. ■Precise measurements can be made of the length and frequency of the infant's attention between two stimuli. ■Heart and respiration monitors provide the investigator with the number of heartbeats or breaths taken when a new stimulus is presented. ■Numerical increases are used as quantifiable indicators of heightened interest in the new stimulus. Increases in

nonnutritive sucking were first used as an assessment measure by researchers in 1969. They devised an apparatus that connected a baby's pacifier to a counting device. As stimuli were presented, changes in the infant's sucking behavior were recorded. Increases in the number of sucks were used as an indicator of the infant's attention to or preference for a given visual display.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

The repetition allows researchers to observe the infant's behavior until they reach agreement about the presence and the degree of the infant's response.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that not presented in the passage or are minor ideas in the passage.

This question is worth 2 points.

Researchers use a number of techniques to determine how infants respond to changes in their environment

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-
-

Answer choices

- Data from observational methods must be confirmed through multiple studies.
- New techniques for studying infant perception have improved the accuracy with which researchers observe and quantify infant responses
- Indirect observation is most accurate when researchers use it to test auditory and olfactory perception in neonates.
- Visual indicators such as turning the head, blinking the eyes, or crying remain the best evidence of an infant's perceptual abilities.
- Pacifiers are commonly used in studies to calm an infant who has been presented with excessive stimuli.
- Sophisticated techniques that have aided new discoveries about perception in the neonate continue to be indirect measures.

参考答案:

1. ○3
2. ○3
3. ○1
4. ○3
5. ○2
6. ○1
7. ○2
8. ○4
9. ○4
10. ○1
11. ○3
12. ○4
13. ○2
14. Data from observational...
 - New techniques for...
 - Sophisticated techniques that...

研究婴儿感知能力的方法

在对婴儿感知能力的研究中，许多技术被应用于确定婴儿对不同刺激的反应，由于他们（婴儿）无法用言语表达或者填写问卷，所以自然观察的非直接性技术被应用于确定婴儿看，听，感知等的要表达的本意。这些方法都是将在刺激引入前和刺激引入的同时或紧随其后婴儿产生的反应作对比。对刺激的反应程度和反应持续时间是可以提供给研究人员的两种不同的评判标准。比如说，如果一个移动的物体的通过新生儿的视线『即重复移动眼睛进行跟随发生的话』。这个眼球移动的现象就说明移动的物体在一定程度上引起的新生儿的注意。同样的，改变新生儿的一般程度的活动，比如摆头，眨眼，哭或者别的，都可以提供研究人员对于婴儿感知能力的研究提供直观参考。

但这些技术也是有局限性的。第一，两个甚至更多的观察者也许不会察觉到特殊反应的发生或者什么促使他发生，这样的话这种观察就是不可靠的。第二，反应难以被量化，婴儿的很多反应是发生的在很短的时间内以至于研究人员很难准确记录。第三点也是最重要的一点，不可能非常明确的说婴儿的反应是由现存的刺激或者后产生的刺激所导致的。婴儿可能只是对刺激所表现的反应可能因观察者的不同而不同。同时必须要注意的是，用这些技术所产生的观察结果必须过于从资料中概括或者仅仅只是靠一个或两个特殊的婴儿感知能力研究而作为收集到的证据。

观察评估技术变得更加复杂，所受的限制也在减少。膜状婴儿反射分析，心脏和呼吸频率的稳定性和奶嘴被作为高效的工具用于理解婴儿的感知能力。膜状反射分析允许观察者小心的一遍遍的研究婴儿的相对缓慢的反应。通过婴儿在两次刺激之间的注意力的长度和频率可以制造出严谨的数据标准。心脏和呼吸频率测量仪可以在新的刺激产生时提供给观察者婴儿的心跳次数和呼吸间隙。数值增长被用于一些新刺激的兴趣提升。**1969**年，奶嘴的吮吸动作的增加次数首次被研究人员作为评估标准。他们设计出了一个连接着仪表的婴儿奶嘴。只要刺激出现，婴儿的吮吸习惯就会被记录。吮吸次数的增加也就变成了对婴儿所表现出的注意力以及喜好的直观展示。

另有两个研究婴儿感知的技术走进人们的视野。第一个就是习惯非习惯性技术，靠的是观察一个单一的重复的对婴儿的刺激，直到婴儿对这一信号形成习惯并对信号的反应出现可测量的减弱（习惯性）。然后在一个新的刺激的出现时，任何对新刺激的反应的平复也都会被记录下来（非习惯性）。如果婴儿没有不习惯而是持续表示出对那些新刺激的习惯性，那么就可以假定婴儿没有办法识别出新的刺激有什么不同。这种习惯于非习惯的实验被广泛应用与听觉与嗅觉的婴儿感知研究上。另一种技术依靠唤醒潜能，脑电波的反应可能与特殊刺激的感受区相关联。改变大脑指示的电讯号可以让刺激通过中枢神经系统并且唤醒相应的反射区。

以上所说的每一种技术都可以给研究者提供关于婴儿能够探知或区别刺激的依据，通过这些复杂的观察记录和电子生物学的探测，我们知道一个只有几天的新生儿能探知的要远比我们之前猜测的要多的多。然而，这些标准也只是通过间接的指示器所测量到的婴儿感知的能力。

Children and Advertising

Young children are trusting of commercial advertisements in the media, and advertisers have sometimes been accused of taking advantage of this trusting outlook. The Independent Television Commission, regulator of television advertising in the United Kingdom, has criticized advertisers for "misleadingness"—creating a wrong impression either intentionally or unintentionally—in an effort to control advertisers' use of techniques that make it difficult for children to judge the true size, action, performance, or construction of a toy.

General concern about misleading tactics that advertisers employ is centered on the use of exaggeration. Consumer protection groups and parents believe that children are largely ill-equipped to recognize such techniques and that often exaggeration is used at the expense of product information. Claims such as "the best" or "better than" can be subjective and misleading; even adults may be unsure as to their meaning. They represent the advertiser's opinions about the qualities of their products or brand and, as a consequence, are difficult to verify. Advertisers sometimes offset or counterbalance an exaggerated claim with a disclaimer—a qualification or condition on the claim. For example, the claim that breakfast cereal has a health benefit may be accompanied by the disclaimer "when part of a nutritionally balanced breakfast." However, research has shown that children often have difficulty understanding disclaimers: children may interpret the phrase "when part of a nutritionally balanced breakfast" to mean that the cereal is required as a necessary part of a balanced breakfast. The author George Comstock suggested that less than a quarter of children between the ages of six and eight years old understood standard disclaimers used in many toy advertisements and that disclaimers are more readily comprehended when presented in both audio and visual formats. Nevertheless, disclaimers are mainly presented in audio format only.

Fantasy is one of the more common techniques in advertising that could possibly mislead a young audience. Child-oriented advertisements are more likely to include magic and fantasy than advertisements aimed at adults. In a content analysis of Canadian television, the author Stephen Kline observed that nearly all commercials for character toys featured fantasy play. Children have strong imaginations and the use of fantasy brings their ideas to life, but children may not be adept enough to realize that what they are viewing is unreal. Fantasy situations and settings are frequently used to attract children's attention, particularly in food advertising. Advertisements for breakfast cereals have, for many years, been found to be especially fond of fantasy techniques, with almost nine out of ten including such content. Generally, there is uncertainty as to whether very young children can distinguish between fantasy and reality in advertising. Certainly, rational appeals in advertising aimed at children are limited, as most advertisements use emotional and indirect appeals to psychological states or associations.

The use of celebrities such as singers and movie stars is common in advertising. The intention is for the positively perceived attributes of the celebrity to be transferred to the advertised product and for the two to become automatically linked in the audience's mind. In children's advertising, the "celebrities" are often animated figures from popular cartoons. In the recent past, the role of celebrities in advertising to children has often been conflated with the concept of host selling. Host selling involves blending advertisements with regular programming in a way that makes it difficult to distinguish one from the other. Host selling occurs, for example, when a children's show about a cartoon lion contains an ad in which the same lion promotes a breakfast cereal. The psychologist Dale Kunkel showed that the practice of host selling reduced children's ability to distinguish between advertising and program material. It was also found that older children responded more positively to products in host selling advertisements.

Regarding the appearance of celebrities in advertisements that do not involve host selling, the evidence is mixed. Researcher Charles Atkin found that children believe that the characters used to advertise breakfast cereals are knowledgeable about cereals, and children accept such characters as credible sources of nutritional information. This finding was even more marked for heavy viewers of television. In addition, children feel validated in their choice of a product when a celebrity endorses that product. A study of children in Hong Kong, however, found that the presence of celebrities in advertisements could negatively affect the children's perceptions of a product if the children did not like the celebrity in question.

Paragraph 1: Young children are trusting of commercial advertisements in the media, and advertisers have sometimes been accused of taking advantage of this trusting outlook. The Independent Television Commission, regulator of television advertising in the United Kingdom, has criticized advertisers for "misleadingness"—creating a wrong impression either intentionally or unintentionally—in an effort to control advertisers' use of techniques that make it difficult for children to judge the true size, action, performance, or construction of a toy.

1. Which of the following is NOT mentioned in paragraph 1 as being a difficult judgment for children to make about advertised toys?

- How big the toys are
- How much the toys cost
- What the toys can do
- How the toys are made

Paragraph 2: General concern about misleading tactics that advertisers employ is centered on the use of exaggeration. Consumer protection groups and parents believe that children are largely ill-equipped to recognize such techniques and that often exaggeration is used at the expense of product information. Claims such as "the best" or "better than" can be subjective and misleading; even adults may be unsure as to their meaning. They represent the advertiser's opinions about the qualities of their products or brand and, as a consequence, are difficult to verify. Advertisers sometimes offset or counterbalance an exaggerated claim with a disclaimer—a qualification or condition on the claim. For example, the claim that breakfast cereal has a health benefit may be accompanied by the disclaimer "when part of a nutritionally balanced breakfast." However, research has shown that children often have difficulty understanding disclaimers: children may interpret the phrase "when part of a nutritionally balanced breakfast" to mean that the cereal is required as a necessary part of a balanced breakfast. The author George Comstock suggested that less than a quarter of children between the ages of six and eight years old understood standard disclaimers used in many toy advertisements and that disclaimers are more readily comprehended when presented in both audio and visual formats. Nevertheless, disclaimers are mainly presented in audio format only.

2. The word "verify" in the passage is closest in meaning to

- establish the truth of
- approve of
- understand
- criticize

3. In paragraph 2, what is one reason that claims such as "the best" or "better than" can be misleading?

- They represent the opinions of adults, which are often different from those of children.
- They generally involve comparisons among only a small group of products.
- They reflect the attitudes of consumer protection groups rather than those of actual consumers.
- They reflect the advertiser's viewpoint about the product.

4. Cereal advertisements that include the statement “when part of a nutritionally balanced breakfast” are trying to suggest that

- the cereal is a desirable part of a healthful, balanced breakfast
- the cereal contains equal amounts of all nutrients
- cereal is a healthier breakfast than other foods are
- the cereal is the most nutritious part of the breakfast meal

5. According to paragraph 2, all of the following are true of disclaimers made in advertisements EXCEPT:

- They are qualifications or conditions put on a claim.
- They may be used to balance exaggerations.
- They are usually presented in both audio and visual formats.
- They are often difficult for children to understand.

Paragraph 3: Fantasy is one of the more common techniques in advertising that could possibly mislead a young audience. Child-oriented advertisements are more likely to include magic and fantasy than advertisements aimed at adults. In a content analysis of Canadian television, the author Stephen Kline observed that nearly all commercials for character toys featured fantasy play. Children have strong imaginations and the use of fantasy brings their ideas to life, but children may not be adept enough to realize that what they are viewing is unreal. Fantasy situations and settings are frequently used to attract children's attention, particularly in food advertising. Advertisements for breakfast cereals have, for many years, been found to be especially fond of fantasy techniques, with almost nine out of ten including such content. Generally, there is uncertainty as to whether very young children can distinguish between fantasy and reality in advertising. Certainly, rational appeals in advertising aimed at children are limited, as most advertisements use emotional and indirect appeals to psychological states or associations.

6. The word “adept” in the passage is closest in meaning to

- responsible
- skillful
- patient
- curious

7. Paragraph 3 indicates that there is uncertainty about which of the following issues involving children and fantasy in advertising?

- Whether children can tell if what they are seeing in an advertisement is real or fantasy
- Whether children can differentiate fantasy techniques from other techniques used in advertising
- Whether children realize how commonly fantasy techniques are used in advertising aimed at them
- Whether children are attracted to advertisements that lack fantasy

8. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Rational appeals in advertising are certainly limited by children's emotional immaturity and the indirect nature of their associations.
- Indirect appeals to children's psychological states or associations can limit the effectiveness of rational appeals in advertising.
- Rational appeals play a much smaller role in advertisements for children than emotional appeals and psychological associations do.
- Rational appeals in advertising aimed at children should certainly be limited until the children are emotionally and psychologically ready.

Paragraph 4: The use of celebrities such as singers and movie stars is common in advertising. The intention is for the positively perceived attributes of the celebrity to be transferred to the advertised product and for the two to become automatically linked in the audience's mind. In children's advertising, the "celebrities" are often animated figures from popular cartoons. In the recent past, the role of celebrities in advertising to children has often been conflated with the concept of host selling. Host selling involves blending advertisements with regular programming in a way that makes it difficult to distinguish one from the other. Host selling occurs, for example, when a children's show about a cartoon lion contains an ad in which the same lion promotes a breakfast cereal. The psychologist Dale Kunkel showed that the practice of host selling reduced children's ability to distinguish between advertising and program material. It was also found that older children responded more positively to products in host selling advertisements.

9. The word "attributes" in the passage is closest in meaning to

- evaluations
- attitudes
- actions
- characteristics

10. In paragraph 4, why does the author mention a show about a cartoon lion in which an advertisement appears featuring the same lion character?

- To help explain what is meant by the term "host selling" and why it can be misleading to children
- To explain why the role of celebrities in advertising aimed at children has often been confused with host selling
- To compare the effectiveness of using animated figures with the effectiveness of using celebrities in advertisements aimed at children
- To indicate how Kunkel first became interested in studying the effects of host selling on children

Paragraph 5: Regarding the appearance of celebrities in advertisements that do not involve host selling, the evidence is mixed. Researcher Charles Atkin found that children believe that the characters used to advertise breakfast cereals are knowledgeable about cereals, and children accept such characters as credible sources of nutritional information. This finding was even more marked for heavy viewers of television. In addition, children feel validated in their choice of a product when a celebrity endorses that product. A study of children in Hong Kong, however, found that the presence of celebrities in advertisements could negatively affect the children's perceptions of a product if the children did not like the celebrity in question.

11. The word "credible" in the passage is closest in meaning to

- helpful
- believable
- valuable
- familiar

12. According to paragraph 5, what did a study of children in Hong Kong show about the use of celebrities in advertisements aimed at children?

- It is most effective with children who watch a lot of television.
- It has little effect if the celebrities are not familiar to most children.
- It is more effective in marketing cereals and food products than in marketing other kinds of products.
- It can have a negative effect if the celebrities are not popular with children, in the passage is closest in meaning to.

Paragraph 3: ■Fantasy is one of the more common techniques in advertising that could possibly mislead a young audience. ■Child-oriented advertisements are more likely to include magic and fantasy than advertisements aimed at

adults. ■In a content analysis of Canadian television, the author Stephen Kline observed that nearly all commercials for character toys featured fantasy play. ■Children have strong imaginations and the use of fantasy brings their ideas to life, but children may not be adept enough to realize that what they are viewing is unreal. Fantasy situations and settings are frequently used to attract children's attention, particularly in food advertising. Advertisements for breakfast cereals have, for many years, been found to be especially fond of fantasy techniques, with almost nine out of ten including such content. Generally, there is uncertainty as to whether very young children can distinguish between fantasy and reality in advertising. Certainly, rational appeals in advertising aimed at children are limited, as most advertisements use emotional and indirect appeals to psychological states or associations.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Another aspect of advertising that may especially influence children is fantasy.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that not presented in the passage or are minor ideas in the passage.

This question is worth 2 points.

Advertisers sometimes use strategies that can mislead children.

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-
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Answer Choices

- Advertisements can be misleading to children when the advertisements use audio and visual formats that are especially appealing to children.
- Children may not be able to interpret exaggerated claims made by advertisers or understand the disclaimers used to offset claims.
- Although the use of celebrities is not necessarily effective in advertisements aimed at children, there is evidence that host selling can positively affect their views of a product.
- Studies show that misleading tactics are used most often in commercials for breakfast cereals, with toy commercials using such tactics only slightly less frequently.
- The use of fantasy is especially common in advertisements for children, but children may not be able to distinguish fantasy from reality.
- Very young children are particularly influenced by host selling, while slightly older children are more readily misled by seemingly rational claims such as “the best.”

参考答案:

1. ○2
2. ○1
3. ○4
4. ○1
5. ○3
6. ○2
7. ○1
8. ○3
9. ○4
10. ○1
11. ○2
12. ○4
13. ○1
14. Children may not...
The use of...
Although the use...

儿童和广告

儿童信任媒体中的商业广告，并且广告商因利用这种信任背景的有利条件常常受到指责。英国电视广告的调节者独立电视委员会批评广告商的误导---无论是有意还是无意的情况下创造了一个错误的印象---即广告商尽量控制对技术的使用，这样使儿童很难判断商品的真实大小，运动情况，外在表现或者如何否制造一个玩具。

人们普遍关心广告商夸大其词的误导策略。消费者保护组织和家长们相信孩子们大部分的不具备识别这种技巧的能力，并且他们相信这种夸大掩盖了相关产品信息。声称这是“最好的”或“比什么好”都是主观的和误导。即使是成年人也许也不能确定他们的意思。它们代表了广告客户对产品质量或品牌的观点，因此，它们很难被核实。广告商有时通过补偿或者免责的形式来平衡一个夸大的说辞。举个例子，声称早餐食用谷物食品对健康是有益的可能会附带一个免责声明“当早餐被部分营养平衡时”。然而，研究发现儿童常常对理解免责声明有困难：儿童解释“当早餐被部分营养平衡时”为谷类食物是均衡早餐营养的必需成份。作者 **George Comstock** 指出在六岁到八岁之间的儿童，其中少于四分之一的儿童理解了用于大多数的玩具中的标准的免责声明。同时，当免责声明以声音和视觉的形式同时出现时是容易被理解的。然而，它们多是以声音的形式出现。

广告中的幻想是一种非常常见的技术以此来误导一个年轻的观众。面向儿童的广告比面向成年的广告更有可能包含了魔力和迷幻部分。通过分析加拿大的电视内容，作者 **Stephen Kline** 注意到几乎所有的角色玩具广告中都以幻想剧为出发点。儿童有着丰富的想象力，运用想象力把他们的想法带入了生活，但是儿童也许不能熟练的认识到他们所看到的并不是真实的。想象力的环境和背景常常用于吸引儿童的注意力，特别是食物广告。多年以来，早餐食用谷类食物的广告，被认为是特别喜爱运用想象力的技术广告，几乎十家有九家包含了这样的内容。一般的来看，幼童区别广告中的幻想和现实部分存在着不确定性。当然，当大部分的广告对儿童运用情感和对其心理状态或该团体使用间接号召力时，广告中对儿童的理性的号召力将会显得受限制。

广告中常常使用名人如歌星和电影明星。目的是将感知到的对名人的积极评价转移为对我们所广告的产品的评价，使两者在观众的脑海中自动的变得有联系。在儿童的广告中，名人常常是扮演卡通中的著名人物。最近几年，对儿童来说名人在广告中的作用已经与卡通主角销售混为一谈了。主角销售需要通过一种方法来混合常规形式的广告以此使两者区别开来比较困难。举一个出现主角销售的例子，当一个儿童展示一个广告中出现的卡通狮子时，则该狮子也在售卖谷类早餐。心理学家 **Dale Kunkel** 指出主角销售的实践减弱了儿童区别广告和实物本质的能力。同样发现，年龄较大的儿童对主角销售的广告反应较大。

关于名人在广告中的出现并不涉及主角销售的证据是复杂的。研究员 **Charles Atkin** 发现儿童相信谷物早餐广告中使用的卡通人物对谷物是很了解的，并且，儿童接受这样的卡通人物，认为它们是营养信息的可靠来源。这一发现对沉溺电视的观众是一标示。另外，当名人赞同某一个产品并且儿童也选择这个产品时，儿童会感觉产品有效果。然而，在香港对儿童的研究发现，如果儿童不喜欢当下的名人，名人在广告中的出现可能使儿童对该产品的看法变得负面影响。

Maya Water Problems

To understand the ancient Mayan people who lived in the area that is today southern Mexico and Central America and the ecological difficulties they faced, one must first consider their environment, which we think of as "jungle" or "tropical rainforest." This view is inaccurate, and the reason proves to be important. Properly speaking, tropical rainforests grow in high-rainfall equatorial areas that remain wet or humid all year round. But the Maya homeland lies more than sixteen hundred kilometers from the equator, at latitudes 17 to 22 degrees north, in a habitat termed a "seasonal tropical forest." That is, while there does tend to be a rainy season from May to October, there is also a dry season from January through April. If one focuses on the wet months, one calls the Maya homeland a "seasonal tropical forest"; if one focuses on the dry months, one could instead describe it as a "seasonal desert."

From north to south in the Yucatan Peninsula, where the Maya lived, rainfall ranges from 18 to 100 inches (457 to 2,540 millimeters) per year, and the soils become thicker, so that the southern peninsula was agriculturally more productive and supported denser populations. But rainfall in the Maya homeland is unpredictably variable between years; some recent years have had three or four times more rain than other years. As a result, modern farmers attempting to grow corn in the ancient Maya homelands have faced frequent crop failures, especially in the north. The ancient Maya were presumably more experienced and did better, but nevertheless they too must have faced risks of crop failures from droughts and hurricanes.

Although southern Maya areas received more rainfall than northern areas, problems of water were paradoxically more severe in the wet south. While that made things hard for ancient Maya living in the south, it has also made things hard for modern archaeologists who have difficulty understanding why ancient droughts caused bigger problems in the wet south than in the dry north. The likely explanation is that an area of underground freshwater underlies the Yucatan Peninsula, but surface elevation increases from north to south, so that as one moves south the land surface lies increasingly higher above the water table. In the northern peninsula the elevation is sufficiently low that the ancient Maya were able to reach the water table at deep sinkholes called cenotes, or at deep caves. In low-elevation north coastal areas without sinkholes, the Maya would have been able to get down to the water table by digging wells up to 75 feet (22 meters) deep. But much of the south lies too high above the water table for cenotes or wells to reach down to it. Making matters worse, most of the Yucatan Peninsula consists of karst, a porous sponge-like limestone terrain where rain runs straight into the ground and where little or no surface water remains available.

How did those dense southern Maya populations deal with the resulting water problem? It initially surprises us that many of their cities were not built next to the rivers but instead on high terrain in rolling uplands. The explanation is that the Maya excavated depressions, or modified natural depressions, and then plugged up leaks in the karst by plastering the bottoms of the depressions in order to create reservoirs, which collected rain from large plastered catchment basins and stored it for use in the dry season. For example, reservoirs at the Maya city of Tikal held enough water to meet the drinking water needs of about 10,000 people for a period of 18 months. At the city of Coba the Maya built dikes around a lake in order to raise its level and make their water supply more reliable. But the inhabitants of Tikal and other cities dependent on reservoirs for drinking water would still have been in deep trouble if 18 months passed without rain in a prolonged drought. A shorter drought in which they exhausted their stored food supplies might already have gotten them in deep trouble, because growing crops required rain rather than reservoirs.

Paragraph 1: To understand the ancient Mayan people who lived in the area that is today southern Mexico and Central America and the ecological difficulties they faced, one must first consider their environment, which we think of as "jungle" or "tropical rainforest." This view is inaccurate, and the reason proves to be important. Properly speaking,

tropical rainforests grow in high-rainfall equatorial areas that remain wet or humid all year round. But the Maya homeland lies more than sixteen hundred kilometers from the equator, at latitudes 17 to 22 degrees north, in a habitat termed a "seasonal tropical forest." That is, while there does tend to be a rainy season from May to October, there is also a dry season from January through April. If one focuses on the wet months, one calls the Maya homeland a "seasonal tropical forest"; if one focuses on the dry months, one could instead describe it as a "seasonal desert."

1. Why does the author call the Mayan homeland both a "seasonal tropical forest" and "seasonal desert"?
 - To illustrate how the climate of the Mayan homeland varied from region to region
 - To explain how the climate of the Mayan homeland is similar to that of a jungle or tropical rainforest
 - To emphasize the vast size of the area that comprised the Mayan homeland in ancient times
 - To make the point that the Mayan homeland is climatically more complex than is generally assumed

Paragraph 2: From north to south in the Yucatan Peninsula, where the Maya lived, rainfall ranges from 18 to 100 inches (457 to 2,540 millimeters) per year, and the soils become thicker, so that the southern peninsula was agriculturally more productive and supported denser populations. But rainfall in the Maya homeland is unpredictably variable between years; some recent years have had three or four times more rain than other years. As a result, modern farmers attempting to grow corn in the ancient Maya homelands have faced frequent crop failures, especially in the north. The ancient Maya were presumably more experienced and did better, but nevertheless they too must have faced risks of crop failures from droughts and hurricanes.

2. Which of the following is NOT mentioned in paragraph 2 as a difference between the northern and southern Yucatan Peninsula?
 - The annual rainfall was greater in the south.
 - The population density was lower in the north.
 - Agricultural productivity was greater in the south
 - Rainfall was more unpredictable and variable in the south.

3. Which of the following statements about ancient and modern agriculture in the Yucatan Peninsula is supported by paragraph 2?
 - Modern agricultural methods have solved many of the ancient problems of farming in the Yucatan Peninsula.
 - Ancient Mayan farmers may have been somewhat more successful at farming in the Yucatan Peninsula than farmers are today.
 - Farming today is easier than in the past because environmental changes in the Yucatan Peninsula have increased available rainfall
 - The Yucatan soils in which ancient farmers worked were richer, more productive, and thicker than they are today.

Paragraph 3: Although southern Maya areas received more rainfall than northern areas, problems of water were paradoxically more severe in the wet south. While that made things hard for ancient Maya living in the south, it has also made things hard for modern archaeologists who have difficulty understanding why ancient droughts caused bigger problems in the wet south than in the dry north. The likely explanation is that an area of underground freshwater underlies the Yucatan Peninsula, but surface elevation increases from north to south, so that as one moves south the land surface lies increasingly higher above the water table. In the northern peninsula the elevation is sufficiently low that the ancient Maya were able to reach the water table at deep sinkholes called cenotes, or at deep caves. In low-elevation north coastal areas without sinkholes, the Maya would have been able to get down to the water table by digging wells up to 75 feet (22 meters) deep. But much of the south lies too high above the water table for cenotes or wells to reach down to it. Making matters worse, most of the Yucatan Peninsula consists of karst, a porous sponge-like limestone terrain where rain runs straight into the ground and where little or no surface water remains

available.

4. The word “paradoxically” in the passage is closest in meaning to
- usually
 - surprisingly
 - understandably
 - predictably
5. The phrase “The likely explanation” in the passage refers to the explanation for why
- the southern Maya areas received more rainfall than the northern areas
 - modern archaeologists have difficulty understanding ancient droughts
 - water problems were most severe in the wet south
 - land surface in the south is so high above the water table
6. Which of the following statements about the availability of water in the Mayan homeland is supported by paragraph 3?
- The construction of wells was an uncommon practice in both the north and the south because it was too difficult to dig through the karst.
 - In most areas in the north and the south, rainwater was absorbed directly into the porous karst.
 - The water table was an important resource for agriculture in both the north and the south of the Yucatan Peninsula.
 - The lack of surface water in both the north and the south was probably due to the fact that most of it was quickly used up for agricultural purposes.
7. According to paragraph 3, why was the southern Mayan homeland hard to farm?
- The presence of numerous sinkholes and wells interfered with farming.
 - Southern soil lacked the depth crops needed for growth.
 - Underground water was too far below the surface to reach.
 - The presence of karst caused frequent flooding.

Paragraph 4: How did those dense southern Maya populations deal with the resulting water problem? It initially surprises us that many of their cities were not built next to the rivers but instead on high terrain in rolling uplands. The explanation is that the Maya excavated depressions, or modified natural depressions, and then plugged up leaks in the karst by plastering the bottoms of the depressions in order to create reservoirs, which collected rain from large plastered catchment basins and stored it for use in the dry season. For example, reservoirs at the Maya city of Tikal held enough water to meet the drinking water needs of about 10,000 people for a period of 18 months. At the city of Coba the Maya built dikes around a lake in order to raise its level and make their water supply more reliable. But the inhabitants of Tikal and other cities dependent on reservoirs for drinking water would still have been in deep trouble if 18 months passed without rain in a prolonged drought. A shorter drought in which they exhausted their stored food supplies might already have gotten them in deep trouble, because growing crops required rain rather than reservoirs.

- 8 Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
- Southern Maya populations obtained the water they needed for the dry season by collecting and storing rainwater in sealed depressions.
 - The Maya are credited with creating methods for modifying natural rainwater and storing it.
 - Leaks in the karst caused difficulties in the creation of reservoirs, which were needed to store water for the dry season.

-
- Southern Mayans were more successful at collecting rain than storing it during dry seasons.

9.What can be inferred from paragraph 4 about how residents of Tikal met their needs for water and food during most periods of drought?

- They depended upon water and food that had been stored for use during the dry season.
- They obtained drinking water and water for crop irrigation from Coba dikes.
- They located their population centers near a lake where water was available for drinking and watering crops.
- They moved locations every 18 months to find new croplands and water sources.

10. The word "prolonged" in the passage is closest in meaning to

- unusual
- unexpected
- extended
- disastrous

11. The word "exhausted" in the passage is closest in meaning to

- used up
- reduced
- wasted
- relied upon

Paragraph 1: To understand the ancient Mayan people who lived in the area that is today southern Mexico and Central America and the ecological difficulties they faced, one must first consider their environment, which we think of as "jungle" or "tropical rainforest." ■This view is inaccurate, and the reason proves to be important. ■Properly speaking, tropical rainforests grow in high-rainfall equatorial areas that remain wet or humid all year round. But the Maya homeland lies more than sixteen hundred kilometers from the equator, at latitudes 17 to 22 degrees north, in a habitat termed a "seasonal tropical forest." ■That is, while there does tend to be a rainy season from May to October, there is also a dry season from January through April. If one focuses on the wet months, one calls the Maya homeland a "seasonal tropical forest"; if one focuses on the dry months, one could instead describe it as a "seasonal desert." ■

12. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

The difference between the two climates challenged the Maya who had to deal with both.

Where would the sentence best fit?

13.**Directions:** Select from the seven phrases below the phrases that correctly characterize the southern Mayan homeland and the phrases that correctly characterize the northern Mayan homeland. Drag each phrase you select into the appropriate column of the table. Two of the phrases will NOT be used. **This question is worth 3 points.**

Southern Mayan homeland

-
-
-

Northern Mayan homeland

-
-

Answer Choices

- City of Tikal
- Predictable rainfall

-
- High above water table
 - Used reservoirs
 - Obtained water from wells
 - Dramatically improved corn crops
 - Had comparatively thin layer of soil

参考答案:

1. ○4

2. ○4

3. ○2

4. ○2

5. ○3

6. ○2

7. ○3

8. ○1

9. ○1

10. ○3

11. ○1

12. ○4

13. Southern Mayan homeland: City of Tikal; High above water table; Used reservoirs

Northern Mayan homeland: Obtained water from wells; Had comparatively thin layer of soil

玛雅的水源问题

为了了解生活在今天南墨西哥和中美中地区的古玛雅人种以及他们所面对的生态困境，那么我们必须先研究他们的环境，也就是今天我们所谓的“丛林”或者“热带雨林”。这种观点虽然不是很准确，但是环境因素的意义还是很重要的。严格意义上讲，热带雨林生长在赤道附近常年保持潮湿的多雨地区。但是玛雅的故地是在离赤道六百多公里北纬 **17-22** 度之间，也就是通常所说的“季节性热带雨林”里。也就是说，这个地区在五月到十月是雨季，而在一月到 **4** 月又是旱季。如果是关注湿季的话，可以说玛雅的故地是一个“季节性丛林”，如果关注旱季的话，那玛雅的故地就可以替换并解释为“季节性沙漠”了。

玛雅人所居住的尤卡坦半岛从南向北的年降水量是从 **18** 英寸到 **100** 英寸（**457** 到 **2540** 毫米）逐级递增的，而且土地也是逐级加厚，所以半岛南部的农业生产力相对较高，相伴随的也就能养活更多的人。不过玛雅故地的跨年降雨量的变化程度是不可预测的。一些年份的降雨次数要比其他年份的多三到四次。正因如此，当现代的弄明打算在古玛雅人的故地种植棉花的时候就经常会面临种植的失败，尤其是在半岛的北部。古玛雅人也许更有经验也做得更好，但是不管怎么说他们都必须面对旱灾和飓风而导致的颗粒无收的风险。

尽管玛雅故地的南部比之北部有更多的降雨，但是在潮湿的南方，水资源问题的矛盾性要更加尖锐。古代南部生活的玛雅人所面临的麻烦，在今天也困扰着现代考古学家，他们想不通为什么古代的旱灾的影响在湿润的南方要比干旱的北方大。一种可能季节是尤卡坦半岛的地下水资源的区域是倾斜的，但是地表的上升幅度要低于古玛雅人能挖到的含水层的深层排水口，叫做“**cenote**”，或者叫深层含水层。较低高度的北方沿海地区没有白垩纪，玛雅人应该可以借助凿井到达 **75** 英尺（**22** 米）深的地下水含水层。但是南方想要通过排水口或是凿井来到大含水层的话，深度就要深得多。更要命的是，尤卡坦半岛是由水蚀石灰岩构成的，一种多孔海绵型就石灰岩地域，当雨水来临时水会笔直的流入地底并不在地表留下任何水分。

那么南部如此密集的玛雅人是如何应对水资源问题的呢？起初最令我们惊讶的是玛雅的一些城市并不是建在河边的而是建在旋转与会的高地上的。之所以这么做是因为玛雅人开凿或者改造自然的低地，与此同时通过粉刷低地的地步来堵住水蚀石灰岩的裂口，再用它来做成水库收集雨水以备旱季之用。比如说，位于玛雅太卡城的水库的出水量可以供 **10000** 人在超长无雨的旱季喝上 **18** 个月。即使是较短的旱季他们耗费掉所储存的食物供应或许已经成为更深层次的问题，因为作物的生长需要雨水要远比水库的多。

Pastoralism in Ancient Inner Eurasia

Pastoralism is a lifestyle in which economic activity is based primarily on livestock. Archaeological evidence suggests that by 3000 B.C., and perhaps even earlier, there had emerged on the steppes of Inner Eurasia the distinctive types of pastoralism that were to dominate the region's history for several millennia. Here, the horse was already becoming the animal of prestige in many regions, though sheep, goats, and cattle could also play a vital role. It is the use of horses for transportation and warfare that explains why Inner Eurasian pastoralism proved the most mobile and the most militaristic of all major forms of pastoralism. The emergence and spread of pastoralism had a profound impact on the history of Inner Eurasia, and also, indirectly, on the parts of Asia and Europe just outside this area. In particular, pastoralism favors a mobile lifestyle, and this mobility helps to explain the impact of pastoralist societies on this part of the world.

The mobility of pastoralist societies reflects their dependence on animal-based foods. While agriculturalists rely on domesticated plants, pastoralists rely on domesticated animals. As a result, pastoralists, like carnivores in general, occupy a higher position on the food chain. All else being equal, this means they must exploit larger areas of land than do agriculturalists to secure the same amount of food, clothing, and other necessities. So pastoralism is a more extensive lifeway than farming is. However, the larger the terrain used to support a group, the harder it is to exploit that terrain while remaining in one place. So, basic ecological principles imply a strong tendency within pastoralist lifeways toward nomadism (a mobile lifestyle). As the archaeologist Roger Cribb puts it, "The greater the degree of pastoralism, the stronger the tendency toward nomadism." A modern Turkic nomad interviewed by Cribb commented: "The more animals you have, the farther you have to move."

Nomadism has further consequences. It means that pastoralist societies occupy and can influence very large territories. This is particularly true of the horse pastoralism that emerged in the Inner Eurasian steppes, for this was the most mobile of all major forms of pastoralism. So, it is no accident that with the appearance of pastoralist societies there appear large areas that share similar cultural, ecological, and even linguistic features. By the late fourth millennium B.C., there is already evidence of large culture zones reaching from Eastern Europe to the western borders of Mongolia. Perhaps the most striking sign of mobility is the fact that by the third millennium B.C., most pastoralists in this huge region spoke related languages ancestral to the modern Indo-European languages. The remarkable mobility and range of pastoral societies explain, in part, why so many linguists have argued that the Indo-European languages began their astonishing expansionist career not among farmers in Anatolia (present-day Turkey), but among early pastoralists from Inner Eurasia. Such theories imply that the Indo-European languages evolved not in Neolithic (10,000 to 3,000 B.C.) Anatolia, but among the foraging communities of the cultures in the region of the Don and Dnieper rivers, which took up stock breeding and began to exploit the neighboring steppes.

Nomadism also subjects pastoralist communities to strict rules of portability. If you are constantly on the move, you cannot afford to accumulate large material surpluses. Such rules limit variations in accumulated material goods between pastoralist households (though they may also encourage a taste for portable goods of high value such as silks or jewelry). So, by and large, nomadism implies a high degree of self-sufficiency and inhibits the appearance of an extensive division of labor. Inequalities of wealth and rank certainly exist, and have probably existed in most pastoralist societies, but except in periods of military conquest, they are normally too slight to generate the stable, hereditary hierarchies that are usually implied by the use of the term class. Inequalities of gender have also existed in pastoralist societies, but they seem to have been softened by the absence of steep hierarchies of wealth in most communities, and also by the requirement that women acquire most of the skills of men, including, often, their military skills.

Paragraph 1: Pastoralism is a lifestyle in which economic activity is based primarily on livestock. Archaeological evidence suggests that by 3000 B.C., and perhaps even earlier, there had emerged on the steppes of Inner Eurasia the distinctive types of pastoralism that were to dominate the region's history for several millennia. Here, the horse was already becoming the animal of prestige in many regions, though sheep, goats, and cattle could also play a vital role. It is the use of horses for transportation and warfare that explains why Inner Eurasian pastoralism proved the most mobile and the most militaristic of all major forms of pastoralism. The emergence and spread of pastoralism had a profound impact on the history of Inner Eurasia, and also, indirectly, on the parts of Asia and Europe just outside this area. In particular, pastoralism favors a mobile lifestyle, and this mobility helps to explain the impact of pastoralist societies on this part of the world.

1. The word "prestige" in the passage is closest in meaning to
 - interest
 - status
 - demand
 - profit
2. According to paragraph 1, what made it possible for Inner Eurasian pastoralism to become the most mobile and militaristic form of pastoralism?
 - It involved the domestication of several types of animals.
 - It was based primarily on horses rather than on other animals.
 - It borrowed and improved upon European ideas for mobility and warfare.
 - It could be adapted to a wide variety of environments.
3. The word "profound" in the passage is closest in meaning to
 - strange
 - positive
 - direct
 - far-reaching

Paragraph 2: The mobility of pastoralist societies reflects their dependence on animal-based foods. While agriculturalists rely on domesticated plants, pastoralists rely on domesticated animals. As a result, pastoralists, like carnivores in general, occupy a higher position on the food chain. All else being equal, this means they must exploit larger areas of land than do agriculturalists to secure the same amount of food, clothing, and other necessities. So pastoralism is a more extensive lifeway than farming is. However, the larger the terrain used to support a group, the harder it is to exploit that terrain while remaining in one place. So, basic ecological principles imply a strong tendency within pastoralist lifeways toward nomadism (a mobile lifestyle). As the archaeologist Roger Cribb puts it, "The greater the degree of pastoralism, the stronger the tendency toward nomadism." A modern Turkic nomad interviewed by Cribb commented: "The more animals you have, the farther you have to move."

4. In paragraph 2, why does the author contrast pastoralists with agriculturalists?
 - To explain why pastoralism requires more land than agriculturalism to support basic needs
 - To identify some advantages that mobile societies have over immobile societies
 - To demonstrate that ecological principles that apply to pastoralism do not apply to agriculturalism
 - To argue that agriculturalism eventually developed out of pastoralism
5. According to paragraph 2, pastoralists tend to

-
- prefer grazing their animals on agricultural lands
 - consume comparatively large amounts of food and clothing
 - avoid eating plant foods
 - move from place to place frequently

Paragraph 3: Nomadism has further consequences. It means that pastoralist societies occupy and can influence very large territories. This is particularly true of the horse pastoralism that emerged in the Inner Eurasian steppes, for this was the most mobile of all major forms of pastoralism. So, it is no accident that with the appearance of pastoralist societies there appear large areas that share similar cultural, ecological, and even linguistic features. By the late fourth millennium B.C., there is already evidence of large culture zones reaching from Eastern Europe to the western borders of Mongolia. Perhaps the most **striking** sign of mobility is the fact that by the third millennium B.C., most pastoralists in this huge region spoke related languages ancestral to the modern Indo-European languages. The remarkable mobility and range of pastoral societies explain, in part, why so many linguists have argued that the Indo-European languages began their astonishing expansionist career not among farmers in Anatolia (present-day Turkey), but among early pastoralists from Inner Eurasia. Such theories imply that the Indo-European languages evolved not in Neolithic (10,000 to 3,000 B.C.) Anatolia, but among the foraging communities of the cultures in the region of the Don and Dnieper rivers, which took up stock breeding and began to **exploit** the neighboring steppes.

6. In paragraph 3, why does the author discuss languages spoken in the region spanning from Eastern Europe to the western borders of Mongolia?

- To emphasize the frequency with which Indo-European languages changed as a result of the mobile nature of pastoralism
- To indicate one method linguists use to determine that inhabitants of the Don and Dnieper river area had taken up stock breeding
- To provide evidence that Indo-European languages have their roots in what is now Turkey
- To provide evidence that pastoralist societies can exercise cultural influence over a large area

7. The word "**striking**" in the passage is closest in meaning to

- reliable
- noticeable
- convincing
- violent

8. The word "**exploit**" in the passage is closest in meaning to

- use to advantage
- depart from
- pay attention to
- travel across

Paragraph 4: Nomadism also subjects pastoralist communities to **strict rules of portability**. If you are constantly on the move, you cannot afford to accumulate large material surpluses. Such rules limit variations in accumulated material goods between pastoralist households (though they may also encourage a taste for portable goods of high value such as silks or jewelry). So, by and large, nomadism implies a high degree of self-sufficiency and inhibits the appearance of an extensive division of labor. Inequalities of wealth and rank certainly exist, and have probably existed in most pastoralist societies, but except in periods of military conquest, they are normally too slight to generate the stable, hereditary hierarchies that are usually implied by the use of the term class. **Inequalities of gender have also existed in pastoralist societies, but they seem to have been softened by the absence of steep hierarchies of wealth in most communities, and also by the requirement that women acquire most of the skills of men, including, often,**

their military skills.

9. According to paragraph 4, the fact that pastoralist communities are subject to “strict rules of portability” encourages such communities to

- relocate less frequently than they would otherwise
- have households that are more or less equal in wealth
- become self-sufficient in the manufacture of silk and jewelry
- share large material surpluses with neighboring communities

10. According to paragraph 4, all of the following are true of social inequality in pastoralist societies EXCEPT:

- It exists and has existed to some degree in most pastoral societies.
- It is most marked during periods of military conquest.
- It is expressed in the form of a rigid hierarchy based largely on heredity.
- It is usually too insignificant to be discussed in terms of class differences.

11. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Despite the fact that wealth is relatively evenly distributed in pastoral societies, gender inequality still exists because only men can acquire military skills and social status.
- Inequalities of gender existed in pastoralist societies until most communities began to require women to possess the same skills as men and take part in the military.
- Inequalities of gender in pastoralist societies were caused by steep hierarchies of wealth and differences in military training between men and women.
- In pastoral societies, gender inequality is comparatively mild because wealth is relatively evenly distributed and women have to learn most of the same skills that men do.

Paragraph 4: Nomadism also subjects pastoralist communities to strict rules of portability. ■If you are constantly on the move, you cannot afford to accumulate large material surpluses. ■Such rules limit variations in accumulated material goods between pastoralist households (though they may also encourage a taste for portable goods of high value such as silks or jewelry). ■So, by and large, nomadism implies a high degree of self-sufficiency and inhibits the appearance of an extensive division of labor. ■Inequalities of wealth and rank certainly exist, and have probably existed in most pastoralist societies, but except in periods of military conquest, they are normally too slight to generate the stable, hereditary hierarchies that are usually implied by the use of the term class. Inequalities of gender have also existed in pastoralist societies, but they seem to have been softened by the absence of steep hierarchies of wealth in most communities, and also by the requirement that women acquire most of the skills of men, including, often, their military skills.

12. Look at the four squares [■] that indicate where the following sentence could be added to the passage

There is a good reason for this.

Where would the sentence best fit? Click on a square to add the sentence to the passage.

13. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

By 3000 B.C., a distinctive form of pastoralism had appeared on the steppes of Inner Eurasia.

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- -
 -

Answer Choices

○The domesticated horse is primarily responsible for Inner Eurasian pastoralism's success in mobility and warfare.

○As pastoralists traveled across large areas of terrain with their domesticated animals, they traded valuable material goods such as silks and jewelry.

○Because pastoralists are highly mobile, they tend to have few material possessions and can influence the culture, ecology, and language of very large areas.

○Because pastoralism requires a great deal of land to support its animal-based lifeway, pastoralists must continually relocate and have comparatively egalitarian societies.

○Most scholars now believe that Indo-European languages probably evolved during the Neolithic period in the region of the Don and Dnieper rivers.

○Pastoralist communities do not have social classes in the usual sense because they value spiritual attainment over material wealth.

参考答案:

1. ○2

2. ○2

3. ○4

4. ○1

5. ○4

6. ○4

7. ○2

8. ○1

9. ○2

10. ○3

11. ○4

12. ○1

13. The domesticated horse...

Because pastoralists are...

Because pastoralism requires...

古代内欧的畜牧

畜牧是一种经济活动建立在家畜的饲养上的生活方式。考古证据已经显示早在公元前 3000 年甚至更早的时候，位于欧洲大陆的西伯利亚大草原上已经有一些能够主导这些地区历史长达几千年的独特的畜牧类型。在这里，尽管绵羊、山羊和牛扮演了非常重要的角色，但是马已经在许多地区成为具有优势地位的动物。正是马在交通运输和战争中的使用解释了为什么欧洲大陆的畜牧主义被证明为在所有畜牧主义中最具移动性和最具军事性的一种。畜牧主义的出现和传播对欧洲内陆有一个深远的影响，同时，也间接地影响了一些在这之外的部分亚洲和欧洲地区。特别是，畜牧主义喜欢一种流动中的生活方式，这种流动性有利于解释畜牧主义社会对这部分世界的影响。

畜牧主义社会的流动性反映了他们对以动物为基础的食物的依赖。如果说农业靠在人工种植植物，那么畜牧就依赖于家养动物。因此，一般说来食肉性动物在这种食物链中占据了一个更高的位置。由于其他方面都是相同的，这就意味着如果他们要保证与农业相同的食物、衣物以及其他生活必需品，他们就必须开拓出比农业更大的区域。因此，畜牧业是一种比农业更宽泛的生活方式。但是，支撑一个族群的领土越大，在保持一个地方的同时开发这些领土的困难也就越大。所以，基本的生态学原理暗示了一种由畜牧主义生活方式向游牧主义生活方式转变的强大趋势。正如考古学家 **Roger Cribb** 指出的，畜牧化的程度越深，就会有一种越趋于游牧主义的形式。**Cribb** 评论一个被他观察了的现代土耳其游牧民族道，你拥有越多的动物，你就不得不流动到越远的地方。

游牧生活有一些更重大的意义。它意味着畜牧主义社会占据着并且影响着非常大的地域。特别是在欧洲内陆的西伯利亚大草原上的以马为畜牧对象的出现更具重大意义，因为它是在所有畜牧业中移动性最强的一种。所以，畜牧社会所变现出来的在较大地域中分享类似的文化、生态以及语言特点并非偶然现象。在公元前 4000 年的后期，已经有证据显示存在着一个从东欧延伸到蒙古边境的大文化圈。也许在其移动性方面最具说服力的标志是在公元前 3000 在这个区域的大部分的畜牧者都讲一种与现代印欧语系有关的古老语言。这种值得关注的移动性和畜牧社会的地理范围在某种程度上解释了很多语言学家一直争论的一个问题，那就是为什么印欧语系并不是从 **Anatolia**（现在的土耳其）的农民中传播开来的，而是从早期欧洲内陆的畜牧主义者中产生。这些理论暗示了印欧语系不是从新石器时代的 **Antolia** 发展而来，而是在 **Don** 和 **Dnieper** 流域内从事家畜养殖和开发邻近的西伯利亚大草原的畜牧社群中发展而来。

游牧主义者也用便于携带但却严格的规则下征服了畜牧主义者。如果你不断地移动，你就负担不起大量的剩余物资。这样的规则限制了畜牧主义者家用物资的多样性积累（尽管他们也鼓励积累高质量的便于携带的物品，如真丝和珠宝）。所以，大体上来说，游牧民族包含着一个高程度的自给自足社会并且限制宽泛的劳动分工。当然，不公平的财富和社会地位也同样存在，而且是存在于绝大多数的畜牧主义社会里。但是除了在军事征服时段里，他们由于过于弱小而不能形成所想象的稳定的、世袭的统治阶级。畜牧主义社会里也同样存在性别上的不公平，但是由于在大多数社群中缺少严格的财富等级制度，并且由于妇女往往具有男子的技能所以这种不公平性被弱化了。

A Warm-Blooded Turtle

When it comes to physiology, the leatherback turtle is, in some ways, more like a reptilian whale than a turtle. It swims farther into the cold of the northern and southern oceans than any other sea turtle, and it deals with the chilly waters in a way unique among reptiles.

A warm-blooded turtle may seem to be a contradiction in terms. Nonetheless, an adult leatherback can maintain a body temperature of between 25 and 26°C (77-79°F) in seawater that is only 8°C (46.4°F). Accomplishing this feat requires adaptations both to generate heat in the turtle's body and to keep it from escaping into the surrounding waters. Leatherbacks apparently do not generate internal heat the way we do, or the way birds do, as a by-product of cellular metabolism. A leatherback may be able to pick up some body heat by basking at the surface; its dark, almost black body color may help it to absorb solar radiation. However, most of its internal heat comes from the action of its muscles.

Leatherbacks keep their body heat in three different ways. The first, and simplest, is size. The bigger the animal is, the lower its surface-to-volume ratio; for every ounce of body mass, there is proportionately less surface through which heat can escape. An adult leatherback is twice the size of the biggest cheloniid sea turtles and will therefore take longer to cool off. Maintaining a high body temperature through sheer bulk is called gigantothermy. It works for elephants, for whales, and, perhaps, it worked for many of the larger dinosaurs. It apparently works, in a smaller way, for some other sea turtles. Large loggerhead and green turtles can maintain their body temperature at a degree or two above that of the surrounding water, and gigantothermy is probably the way they do it. Muscular activity helps, too, and an actively swimming green turtle may be 7°C (12.6°F) warmer than the waters it swims through.

Gigantothermy, though, would not be enough to keep a leatherback warm in cold northern waters. It is not enough for whales, which supplement it with a thick layer of insulating blubber (fat). Leatherbacks do not have blubber, but they do have a reptilian equivalent: thick, oil-saturated skin, with a layer of fibrous, fatty tissue just beneath it. Insulation protects the leatherback everywhere but on its head and flippers. Because the flippers are comparatively thin and blade-like, they are the one part of the leatherback that is likely to become chilled. There is not much that the turtle can do about this without compromising the aerodynamic shape of the flipper. The problem is that as blood flows through the turtle's flippers, it risks losing enough heat to lower the animal's central body temperature when it returns. The solution is to allow the flippers to cool down without drawing heat away from the rest of the turtle's body. The leatherback accomplishes this by arranging the blood vessels in the base of its flipper into a countercurrent exchange system.

In a countercurrent exchange system, the blood vessels carrying cooled blood from the flippers run close enough to the blood vessels carrying warm blood from the body to pick up some heat from the warmer blood vessels; thus, the heat is transferred from the outgoing to the ingoing vessels before it reaches the flipper itself. This is the same arrangement found in an old-fashioned steam radiator, in which the coiled pipes pass heat back and forth as water courses through them. The leatherback is certainly not the only animal with such an arrangement; gulls have a countercurrent exchange in their legs. That is why a gull can stand on an ice floe without freezing.

All this applies, of course, only to an adult leatherback. Hatchlings are simply too small to conserve body heat, even with insulation and countercurrent exchange systems. We do not know how old, or how large, a leatherback has

to be before it can switch from a cold-blooded to a warm-blooded mode of life. Leatherbacks reach their immense size in a much shorter time than it takes other sea turtles to grow. Perhaps their rush to adulthood is driven by a simple need to keep warm.

Paragraph 1: When it comes to physiology, the leatherback turtle is, in some ways, more like a reptilian whale than a turtle. It swims farther into the cold of the northern and southern oceans than any other sea turtle, and it deals with the chilly waters in a way unique among reptiles.

1. The phrase "unique among" in the passage is closest in meaning to
 - natural to
 - different from all other
 - quite common among
 - familiar to
2. What can be inferred about whales from paragraph 1?
 - They are considered by some to be reptiles.
 - Their bodies are built in a way that helps them manage extremely cold temperatures.
 - They are distantly related to leatherback turtles.
 - They can swim farther than leatherback turtles.

Paragraph 2: A warm-blooded turtle may seem to be a contradiction in terms. Nonetheless, an adult leatherback can maintain a body temperature of between 25 and 26°C (77-79°F) in seawater that is only 8°C (46.4°F). Accomplishing this feat requires adaptations both to generate heat in the turtle's body and to keep it from escaping into the surrounding waters. Leatherbacks apparently do not generate internal heat the way we do, or the way birds do, as a by-product of cellular metabolism. A leatherback may be able to pick up some body heat by basking at the surface; its dark, almost black body color may help it to absorb solar radiation. However, most of its internal heat comes from the action of its muscles.

3. The word "feat" in the passage is closest in meaning to
 - remarkable achievement
 - common transformation
 - daily activity
 - complex solution
4. Paragraph 2 mentions all of the following as true about the body heat of adult leatherback turtles EXCEPT:
 - Their muscles produce heat for maintaining body temperature.
 - Their dark bodies help trap solar radiation.
 - Their cellular metabolism produces heat as a by-product.
 - Basking at the water's surface helps them obtain heat.

Paragraph 3: Leatherbacks keep their body heat in three different ways. The first, and simplest, is size. The bigger the animal is, the lower its surface-to-volume ratio; for every ounce of body mass, there is proportionately less surface through which heat can escape. An adult leatherback is twice the size of the biggest cheloniid sea turtles and will therefore take longer to cool off. Maintaining a high body temperature through sheer bulk is called gigantothermy. It works for elephants, for whales, and, perhaps, it worked for many of the larger dinosaurs. It apparently works, in a smaller way, for some other sea turtles. Large loggerhead and green turtles can maintain their

body temperature at a degree or two above that of the surrounding water, and gigantothermy is probably the way they do it. Muscular activity helps, too, and an actively swimming green turtle may be 7°C (12.6°F) warmer than the waters it swims through.

5. The word “**bulk**” in the passage is closest in meaning to

- strength
- effort
- activity
- mass

Paragraph 4: Gigantothermy, though, would not be enough to keep a leatherback warm in cold northern waters. It is not enough for whales, which supplement it with a thick layer of insulating blubber (fat). Leatherbacks do not have blubber, but they do have a reptilian equivalent: thick, oil-saturated skin, with a layer of fibrous, fatty tissue just beneath it. Insulation protects the leatherback everywhere but on its head and flippers. Because the flippers are comparatively thin and blade-like, they are the one part of the leatherback that is likely to become chilled. There is not much that the turtle can do about this without compromising the aerodynamic shape of the flipper. The problem is that as blood flows through the turtle’s flippers, it risks losing enough heat to lower the animal’s central body temperature when **it** returns. The solution is to allow the flippers to cool down without drawing heat away from the rest of the turtle’s body. The leatherback accomplishes this by arranging the blood vessels in the base of its flipper into a countercurrent exchange system.

6. The word “**it**” in paragraph 4 refers to

- the problem
- blood
- the turtle
- body temperature

7. According to paragraph 4, which of the following features enables the leatherback turtle to stay warm?

- An insulating layer of blubber
- A thick, oily skin covering fatty tissue
- The aerodynamic shape of its flippers
- A well-insulated head

Paragraph 5: **In a countercurrent exchange system, the blood vessels carrying cooled blood from the flippers run close enough to the blood vessels carrying warm blood from the body to pick up some heat from the warmer blood vessels; thus, the heat is transferred from the outgoing to the ingoing vessels before it reaches the flipper itself.** This is the same arrangement found in an **old-fashioned steam radiator**, in which the coiled pipes pass heat back and forth as water **courses through them**. The leatherback is certainly not the only animal with such an arrangement; gulls have a countercurrent exchange in their legs. That is why a gull can stand on an ice floe without freezing.

8. Which of the sentences below best expresses the essential information in the **highlighted sentence** in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- In a turtle’s countercurrent exchange system, outgoing vessels lie near enough to ingoing ones that heat can be exchanged from the former to the latter before reaching the turtle’s flippers.
- Within the turtle’s flippers, there is a countercurrent exchange system that allows colder blood vessels to absorb heat from nearby warmer blood vessels and then return warmed blood to the turtle’s body.
- In a countercurrent exchange system, a turtle can pick up body heat from being close enough to other turtles, thus

raising its blood temperature as it passes them.

○When a turtle places its flippers close to its body, it is able to use its countercurrent exchange system to transfer heat from the warmer blood vessels in its body to the cooler blood vessels in its flippers.

9. Why does the author mention old-fashioned steam radiator in the discussion of countercurrent exchange systems?

- To argue that a turtle's central heating system is not as highly evolved as that of other warmblooded animals
- To provide a useful comparison with which to illustrate how a countercurrent exchange system works
- To suggest that steam radiators were modeled after the sophisticated heating system of turtles
- To establish the importance of the movement of water in countercurrent exchange systems

10. The phrase "courses through" in the passage is closest in meaning to

- rises through
- heats up in
- runs through
- collects in

Paragraph 6: All this applies, of course, only to an adult leatherback. Hatchlings are simply too small to conserve body heat, even with insulation and countercurrent exchange systems. We do not know how old, or how large, a leatherback has to be before it can switch from a cold-blooded to a warm-blooded mode of life. Leatherbacks reach their immense size in a much shorter time than it takes other sea turtles to grow. Perhaps their rush to adulthood is driven by a simple need to keep warm.

11. According to paragraph 6, which of the following statements is most accurate about young leatherback turtles?

- They lack the countercurrent exchange systems that develop in adulthood.
- Their rate of growth is slower than that of other sea turtles.
- They lose heat easily even with insulation and countercurrent exchange systems.
- They switch between cold-blooded and warm-blooded modes throughout their hatchling stage.

Paragraph 3: Leatherbacks keep their body heat in three different ways. The first, and simplest, is size. The bigger the animal is, the lower its surface-to-volume ratio; for every ounce of body mass, there is proportionately less surface through which heat can escape. An adult leatherback is twice the size of the biggest cheloniid sea turtles and will therefore take longer to cool off. Maintaining a high body temperature through sheer bulk is called gigantothermy. ■It works for elephants, for whales, and, perhaps, it worked for many of the larger dinosaurs. ■It apparently works, in a smaller way, for some other sea turtles. ■Large loggerhead and green turtles can maintain their body temperature at a degree or two above that of the surrounding water, and gigantothermy is probably the way they do it. ■Muscular activity helps, too, and an actively swimming green turtle may be 7°C (12.6°F) warmer than the waters it swims through.

12. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

However, these animals have additional means of staying warm.

Where would the sentence best fit?

13. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the **THREE** answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Contrary to what we would expect of reptiles, the leatherback turtle is actually warm-blooded.

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-
-

Answer Choices

○Even though they swim into cold ocean waters, leatherbacks maintain their body heat in much the same way as sea turtles in warm southern oceans do.

○The leatherback turtle uses a countercurrent exchange system in order to keep the flippers from drawing heat away from the rest of the body.

○The shape of the leatherback turtle's flippers is especially important in maintaining heat in extremely cold northern waters.

○The leatherback turtle is able to maintain body heat through sheer size.

○Leatherbacks have an insulating layer that can be considered the reptilian version of blubber.

○Young leatherbacks often do not survive to adulthood because they are not able to switch from a cold-blooded way of life to a warm-blooded one quickly enough.

参考答案:

1. ○2
2. ○2
3. ○1
4. ○3
5. ○4
6. ○2
7. ○2
- 8.○1
9. ○2
10. ○3
11. ○3
12. ○4
13. The leatherback turtle uses a...
The leatherback turtle is...
Leatherbacks have an...

温血海龟

当谈及到生理学时，棱皮龟在某些方面上更像一个爬行类的鲸鱼。它比别的海龟更能游向寒冷的北部和南部海洋，并且和其他爬行类动物相比，它们在应对寒冷的水域时有其独特的方式。

一只温血海龟看起来似乎是一个矛盾的术语。尽管如此，一只成年棱皮龟在只有 8 摄氏度的海水中可以维持体温在 25-26 摄氏度之间。要完成这一过程，棱皮龟即需要调节它所产生的体温，又要防止它的温度散失到周围的水域中。棱皮龟产生体内热量的方式显然与我们或者鸟类不同，人类和鸟类产生的热量是细胞代谢的副产物。一只棱皮龟也许可以通过晒太阳来收集身体所需的热量。其深色近乎黑色的体色帮助其吸收太阳光的辐射。然而，它的大部分内部热量来自于它的肌肉运动。

棱皮龟用三种方法保存他们的热量。热量保持的最简单第一种—动物体积的大小。动物越大，表面和体积的比率越小。对于体重的每一盎司来讲，该动物表面积越少热量流失的越少。成年棱皮龟是最大的海龟类动物的两倍，因此它需要较长的时间来降温。完全靠体积维持体温的方法叫巨温性。大象、鲸鱼也许包括很多恐龙也是通过这种方法来保持体温的。对其它海龟而言，在一定程度上也是存在着这种现象。大龟和绿海龟可以维持它们的体温与周围水温一样，或者高于它们周围的水温。巨温性可能是它们用的方法，肌肉运动也是有助于维持体温的。一个积极游水的绿海龟身上的温度可能比它所游区域温度高 12.6 华氏度。

然而，棱皮龟不能通过巨温性来维持其在寒冷的北部水域所需要的所有温度。同样，对于通过厚厚的绝缘脂来维持体温的鲸鱼来说也是不够的。棱皮龟没有鲸鱼那样的脂肪，但是它们和爬行类的动物有着类似结构：拥有厚厚的充满饱和的油质皮肤，皮肤下有一个纤维层，而脂肪组织在这个纤维层下面。除了头部和鳍外，这个结构可以保护它们的所有部位。因为棱皮龟有着相对较薄且像刀片的鳍，它们有可能被冻住。没有许多海龟能在不损害其鳍部空气动力学外形下可以做到这些。问题是随着血液流经海龟的鳍部时，它加大了损失的热量，当返回时降低了动物的核心体温。解决办法是在身体其余部分的热量还没有消散前，允许鳍部降低温度。棱皮龟通过将血管安置在鳍的基础部分来完成这一逆流交换循环系统。

在逆流交换循环系统中，血管将冷却的血液从鳍部带来与血管从身体它处带来的温热的血液进行交换。因此在到达鳍部前，热量通过流进的血液和流出的血液完成了热量转移。在老式蒸汽式暖气片上有着相同的布置。当水通过这些盘绕的管子时热量进行了交换。棱皮龟并不是唯一一个拥有这种功能的动物。海鸥在腿部有一个逆流交换循环系统。这就是为什么海鸥可以站在冰川上而不被冻结。

当然，这些只适用于成年的棱皮龟。刚孵化的棱皮龟太小，即使它们拥有绝缘层和逆流交换循环系统也不能保存身体的温度。我们不知道棱皮龟要到多大年龄或者多大尺寸才能从一个冷血动物向一个温血动物转变。然而，棱皮龟长成巨大的身躯的时间要比其它海龟所用的时间较短。棱皮龟也许是为了保暖才向成年过渡的。

Mass Extinctions

Cases in which many species become extinct within a geologically short interval of time are called mass extinctions. There was one such event at the end of the Cretaceous period (around 70 million years ago). There was another, even larger, mass extinction at the end of the Permian period (around 250 million years ago). The Permian event has attracted much less attention than other mass extinctions because mostly unfamiliar species perished at that time.

The fossil record shows at least five mass extinctions in which many families of marine organisms died out. The rates of extinction happening today are as great as the rates during these mass extinctions. Many scientists have therefore concluded that a sixth great mass extinction is currently in progress.

What could cause such high rates of extinction? There are several hypotheses, including warming or cooling of Earth, changes in seasonal fluctuations or ocean currents, and changing positions of the continents. Biological hypotheses include ecological changes brought about by the evolution of cooperation between insects and flowering plants or of bottom-feeding predators in the oceans. Some of the proposed mechanisms required a very brief period during which all extinctions suddenly took place; other mechanisms would be more likely to have taken place more gradually, over an extended period, or at different times on different continents. Some hypotheses fail to account for simultaneous extinctions on land and in the seas. Each mass extinction may have had a different cause. Evidence points to hunting by humans and habitat destruction as the likely causes for the current mass extinction.

American paleontologists David Raup and John Sepkoski, who have studied extinction rates in a number of fossil groups, suggest that episodes of increased extinction have recurred periodically, approximately every 26 million years since the mid-Cretaceous period. The late Cretaceous extinction of the dinosaurs and ammonoids was just one of the more drastic in a whole series of such recurrent extinction episodes. The possibility that mass extinctions may recur periodically has given rise to such hypotheses as that of a companion star with a long-period orbit deflecting other bodies from their normal orbits, making some of them fall to Earth as meteors and causing widespread devastation upon impact.

Of the various hypotheses attempting to account for the late Cretaceous extinctions, the one that has attracted the most attention in recent years is the asteroid-impact hypothesis first suggested by Luis and Walter Alvarez. According to this hypothesis, Earth collided with an asteroid with an estimated diameter of 10 kilometers, or with several asteroids, the combined mass of which was comparable. The force of collision spewed large amounts of debris into the atmosphere, darkening the skies for several years before the finer particles settled. The reduced level of photosynthesis led to a massive decline in plant life of all kinds, and this caused massive starvation first of herbivores and subsequently of carnivores. The mass extinction would have occurred very suddenly under this hypothesis.

One interesting test of the Alvarez hypothesis is based on the presence of the rare-earth element iridium (Ir). Earth's crust contains very little of this element, but most asteroids contain a lot more. Debris thrown into the atmosphere by an asteroid collision would presumably contain large amounts of iridium, and atmospheric currents would carry this material all over the globe. A search of sedimentary deposits that span the boundary between the Cretaceous and Tertiary periods shows that there is a dramatic increase in the abundance of iridium briefly and precisely at this boundary. This iridium anomaly offers strong support for the Alvarez hypothesis even though no asteroid itself has ever been recovered.

An asteroid of this size would be expected to leave an immense crater, even if the asteroid itself was disintegrated

by the impact. The intense heat of the impact would produce heat-shocked quartz in many types of rock. Also, large blocks thrown aside by the impact would form secondary craters surrounding the main crater. To date, several such secondary craters have been found along Mexico's Yucatan Peninsula, and heat-shocked quartz has been found both in Mexico and in Haiti. A location called Chicxulub, along the Yucatan coast, has been suggested as the primary impact site.

Paragraph 1: Cases in which many species become extinct within a geologically short interval of time are called mass extinctions. There was one such event at the end of the Cretaceous period (around 70 million years ago). There was another, even larger, mass extinction at the end of the Permian period (around 250 million years ago). The Permian event has attracted much less attention than other mass extinctions because mostly unfamiliar species perished at that time.

1. Paragraph 1 supports which of the following statements about mass extinctions?

- They take place over a period of 70 million years.
- They began during the Cretaceous period.
- They eliminate many animal species that exist at the time they occur.
- They occur every 250 million years.

Paragraph 2: The fossil record shows at least five mass extinctions in which many families of marine organisms died out. The rates of extinction happening today are as great as the rates during these mass extinctions. Many scientists have therefore concluded that a sixth great mass extinction is currently in progress.

2. According to paragraph 2, scientists base their belief that a mass extinction is going on at present on which of the following?

- The speed with which mass extinctions are happening today is similar to the speed of past extinctions.
- The number of species that have died out since the last extinction event is extremely large.
- Mass extinctions occur with regularity and it is time for another one.
- Fossil records of many marine species have disappeared.

Paragraph 3: What could cause such high rates of extinction? There are several hypotheses, including warming or cooling of Earth, changes in seasonal fluctuations or ocean currents, and changing positions of the continents. Biological hypotheses include ecological changes brought about by the evolution of cooperation between insects and flowering plants or of bottom-feeding predators in the oceans. Some of the proposed mechanisms required a very brief period during which all extinctions suddenly took place; other mechanisms would be more likely to have taken place more gradually, over an extended period, or at different times on different continents. Some hypotheses fail to account for simultaneous extinctions on land and in the seas. Each mass extinction may have had a different cause. Evidence points to hunting by humans and habitat destruction as the likely causes for the current mass extinction.

3. The word extended in the passage is closest in meaning to

- specific
- unlimited
- reasonable
- long

4. According to paragraph 3, each of the following has been proposed as a possible cause of mass extinctions EXCEPT

- habitat destruction

-
- continental movement
 - fierce interspecies competition
 - changes in Earth's temperature

5. Paragraph 3 supports which of the following ideas about mass extinctions?

- Scientists know the exact causes of most mass extinctions.
- Mass extinctions are unlikely to happen again in the future.
- Insects, flowering plants, and bottom-feeding predators in the oceans tend to be the first organisms to disappear during episodes of mass extinctions.
- Some mass extinctions occurred on land and in the seas at the same time.

Paragraph 4: American paleontologists David Raup and John Sepkoski, who have studied extinction rates in a number of fossil groups, suggest that episodes of increased extinction have recurred periodically, approximately every 26 million years since the mid-Cretaceous period. The late Cretaceous extinction of the dinosaurs and ammonoids was just one of the more drastic in a whole series of such recurrent extinction episodes. The possibility that mass extinctions may recur periodically has given rise to such hypotheses as that of a companion star with a long-period orbit deflecting other bodies from their normal orbits, making some of them fall to Earth as meteors and causing widespread devastation upon impact.

6. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Based on their studies of extinction rates of numerous fossil groups, paleontologists David Raup and John Sepkoski have determined that mass extinctions occur about every 26 million years.
- David Raup and John Sepkoski studied extinction rates of numerous fossil groups and suggest that mass extinctions during the Cretaceous period continued for 26 million years.
- Studies that paleontologists David Raup and John Sepkoski conducted of various fossil groups have revealed that extinction rates have increased over the past 26 million years.
- The studies conducted by paleontologists David Raup and John Sepkoski of the fossil remains of species suggest that the extinction rate of species started to increase by the middle of the Cretaceous period.

7. According to paragraph 4, what aspect of extinction episodes does the companion-star hypothesis supposedly clarify?

- Their location
- Their frequency
- Their duration
- Their severity

Paragraph 5: Of the various hypotheses attempting to account for the late Cretaceous extinctions, the one that has attracted the most attention in recent years is the asteroid-impact hypothesis first suggested by Luis and Walter Alvarez. According to this hypothesis, Earth collided with an asteroid with an estimated diameter of 10 kilometers, or with several asteroids, the combined mass of which was comparable. The force of collision spewed large amounts of debris into the atmosphere, darkening the skies for several years before the finer particles settled. The reduced level of photosynthesis led to a massive decline in plant life of all kinds, and this caused massive starvation first of herbivores and subsequently of carnivores. The mass extinction would have occurred very suddenly under this hypothesis.

8. The phrase account for in the passage is closest in meaning to

- describe

-
- challenge
 - explain
 - test

Paragraph 6: One interesting test of the Alvarez hypothesis is based on the presence of the rare-earth element iridium (Ir). Earth's crust contains very little of this element, but most asteroids contain a lot more. Debris thrown into the atmosphere by an asteroid collision would presumably contain large amounts of iridium, and atmospheric currents would carry this material all over the globe. A search of sedimentary deposits that span the boundary between the Cretaceous and Tertiary periods shows that there is a dramatic increase in the abundance of iridium briefly and precisely at this boundary. This iridium anomaly offers strong support for the Alvarez hypothesis even though no asteroid itself has ever been recovered.

9. According to paragraph 6, what made iridium a useful test of the Alvarez hypothesis?

- Its occurrence in a few locations on Earth against several locations on other planets
- Its occurrence in limited quantities on Earth against its abundance in asteroids
- Its ability to remain solid at extremely high temperatures
- Its ease of detection even in very small amounts

10. In stating that no asteroid itself has ever been recovered, the author emphasizes which of the following?

- The importance of the indirect evidence for a large asteroid
- The fact that no evidence supports the asteroid-impact hypothesis
- The reason many researchers reject the Alvarez hypothesis
- The responsibility of scientists for not making the effort to discover the asteroid itself

Paragraph 7: An asteroid of this size would be expected to leave an immense crater, even if the asteroid itself was disintegrated by the impact. The intense heat of the impact would produce heat-shocked quartz in many types of rock. Also, large blocks thrown aside by the impact would form secondary craters surrounding the main crater. To date, several such secondary craters have been found along Mexico's Yucatan Peninsula, and heat-shocked quartz has been found both in Mexico and in Haiti. A location called Chicxulub, along the Yucatan coast, has been suggested as the primary impact site.

11. The word intense in the passage is closest in meaning to

- sudden
- unusual
- immediate
- extreme

12. What is the purpose of paragraph 7 in the passage?

- It proposes a decisive new test of the Alvarez hypothesis.
- It presents additional supporting evidence for the Alvarez hypothesis.
- It explains why evidence relating to the Alvarez hypothesis is hard to find.
- It shows how recent evidence has raised doubts about the Alvarez hypothesis.

Paragraph 1: ■Cases in which many species become extinct within a geologically short interval of time are called mass extinctions. ■There was one such event at the end of the Cretaceous period (around 70 million years ago). ■There was another, even larger, mass extinction at the end of the Permian period (around 250 million years ago). ■The Permian event has attracted much less attention than other mass extinctions because mostly unfamiliar species perished at that time.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

In general, it is believed that these two extinctions resulted from drastic environmental changes that followed meteorite impacts or massive volcanic eruptions.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

There have been many attempts to explain the causes of mass extinctions.

-
-
-

Answer Choices

○ Asteroid impacts, evolutionary developments, and changes in Earth's climate and in the positions of the continents have all been proposed as possible causes of mass extinctions.

○ Researchers have observed 26-million-year cycles in extinction rates of a number of fossil groups that could all be attributed to the same cause.

○ According to the Alvarez hypothesis, much of the iridium originally present on Earth was thrown into the atmosphere as a result of an asteroid impact that also caused a mass extinction.

○ The unusual distribution of iridium on Earth and the presence of craters and heat-shocked quartz are central to the theory that an asteroid impact caused the late Cretaceous event.

○ The collision between Earth and a large asteroid resulted in massive damage and generated enough heat to cause irreversible changes in Earth's atmosphere.

○ There was a particularly large mass extinction that occurred around 250 million years ago at the end of the Permian period, whose cause could not be determined.

参考答案:

1. ○3
2. ○1
3. ○4
4. ○3
5. ○4
6. ○1
7. ○2
- 8.○3
9. ○2
10. ○1
11. ○4
12. ○2
13. ○4
14. Asteroid impacts, evolutionary...
 Researchers have observed...
 The unusual distribution...

大规模物种灭绝

在短短的地质时间间隔内有许大量物种灭绝，这些现象就被称为大规模物种灭绝。在白垩纪时期后期（大约七千万年前）曾经发生过一次大规模物种灭绝。在二叠纪时期后期（大约两亿五千万年前）又发生过一次规模更大的大规模物种灭绝。由于当时消失的物种大部分是人们不熟悉的，人们对二叠纪时期的这次大规模物种灭绝的关注远远不如其他几次大规模物种灭绝。

化石记录显示，至少发生过五次大规模物种灭绝，造成了大批海洋生物物种灭绝。如今物种灭绝的机率和以往那五次大规模物种灭绝时期的几率一样高。因此许多科学家得出结论：第六次大规模物种灭绝即将到来。

是什么导致了如此高的物种灭绝率呢？有几种假说，包括：地球变暖或变冷；季节的变动或洋流的变化；大陆位置移动。生物假说包括：由昆虫与开花植物之间合作式进化或海洋底层肉食动物进化引起的生态变化；这些生物机制，有些在极短的时间内就会灭绝，而有些则很有可能经过长时期在不同时代或不同大陆缓慢地进行的。有些假说倾向于解释在陆地和海洋同时发生的物种灭绝。可能每次大规模物种灭绝都有不同的原因。但是证据指出，人类狩猎以及人类对栖息地破坏很可能是当前大规模物种灭绝的原因。

美国古生物学家 **David Raup** 和 **John Sepkoski** 曾经在大量的化石群里面研究了物种灭绝的机率。他们指出，自从白垩纪时期中期以来，物种灭绝的增加大约每两千六百万年就会定期复发一次。白垩纪时期后期的恐龙和菊石（一种已灭绝的动物）的灭绝仅仅是一系列此类周期性物种灭绝中更为剧烈的一次。定期出现大灭绝的可能性引发了这样的假想：一颗具有长周期轨道的的伴星使其他天体从正常轨道偏离，导致其中一些天体变成流星掉落到地球，在撞击的时候造成大范围的破坏。

在各种试图解释白垩纪时期后期物种灭绝的假说中，近年来最受瞩目的是由 **Luis** 和 **Walter Alvarez** 最先提出的小行星撞击假说。根据这个假说，地球与一个直径大约为 **10** 公里的小行星或者总体积与之相当的几个小行星碰撞。碰撞的力量把大量碎片喷射到大气中，在这些小颗粒沉淀之前能够把天空掩盖上好几年。减弱的光合作用会造成各种植物的生命大规模的下降。这首先会造成大规模的草食动物饿死，接着就是大规模肉食动物饿死。按照这种假说，大规模物种灭绝就会突然间发生。

Alvarez 假说的一个有趣的检验是基于稀土元素铱的存在。这种元素在地壳中的含量很少，但是在大多数小行星中的含量却多得多。小行星碰撞所放射到大气中的碎片可能会含有大量的铱元素，并且大气流会把这些物质带到全球各地。一个关于跨越白垩纪时期与第三纪时期的沉积物的搜索显示：在这两个时期的交接时期，铱元素的含量急剧增加。即使从没发现过撞击的小行星，铱元素异常却为 **Alvarez** 假说提供了有力支持。

按理说，若大一个小行星，即使受到冲击变得粉身碎骨也会留下一个巨大的陨石坑的。撞击所释放的极度高温让许多种岩石形成热冲击石英。撞击也会把一些大石块抛出去，在主要陨石坑周围形成次级陨石坑。迄今为止，人们已经在墨西哥尤卡坦半岛附近找到了一些此类次级陨石坑。并且还在海地和墨西哥找到了热冲击石英。尤卡坦沿海一个叫做 **Chicxulub** 的地方，曾被当做主要的撞击点。

Glacier Formation

Glaciers are slowly moving masses of ice that have accumulated on land in areas where more snowfalls during a year than melts. Snow falls as hexagonal crystals, but once on the ground, snow is soon transformed into a compacted mass of smaller, rounded grains. As the air space around them is lessened by compaction and melting, the grains become denser. With further melting, refreezing, and increased weight from newer snowfall above, the snow reaches a granular recrystallized stage intermediate between flakes and ice known as firn. With additional time, pressure, and refrozen meltwater from above, the small firn granules become larger, interlocked crystals of blue glacial ice. When the ice is thick enough, usually over 30 meters, the weight of the snow and firn will cause the ice crystals toward the bottom to become plastic and to flow outward or downward from the area of snow accumulation.

Glaciers are open systems, with snow as the system's input and meltwater as the system's main output. The glacial system is governed by two basic climatic variables: precipitation and temperature. For a glacier to grow or maintain its mass, there must be sufficient snowfall to match or exceed the annual loss through melting, evaporation, and calving, which occurs when the glacier loses solid chunks as icebergs to the sea or to large lakes. If summer temperatures are high for too long, then all the snowfall from the previous winter will melt. Surplus snowfall is essential for a glacier to develop. A surplus allows snow to accumulate and for the pressure of snow accumulated over the years to transform buried snow into glacial ice with a depth great enough for the ice to flow. Glaciers are sometimes classified by temperature as faster-flowing temperate glaciers or as slower-flowing polar glaciers.

Glaciers are part of Earth's hydrologic cycle and are second only to the oceans in the total amount of water contained. About 2 percent of Earth's water is currently frozen as ice. Two percent may be a deceiving figure, however, since over 80 percent of the world's freshwater is locked up as ice in glaciers, with the majority of it in Antarctica. The total amount of ice is even more awesome if we estimate the water released upon the hypothetical melting of the world's glaciers. Sea level would rise about 60 meters. This would change the geography of the planet considerably. In contrast, should another ice age occur, sea level would drop drastically. During the last ice age, sea level dropped about 120 meters.

When snowfalls on high mountains or in polar regions, it may become part of the glacial system. Unlike rain, which returns rapidly to the sea or atmosphere, the snow that becomes part of a glacier is involved in a much more slowly cycling system. Here water may be stored in ice form for hundreds or even hundreds of thousands of years before being released again into the liquid water system as meltwater. In the meantime, however, this ice is not static. Glaciers move slowly across the land with tremendous energy, carving into even the hardest rock formations and thereby reshaping the landscape as they engulf, push, drag, and finally deposit rock debris in places far from its original location. As a result, glaciers create a great variety of landforms that remain long after the surface is released from its icy covering.

Throughout most of Earth's history, glaciers did not exist, but at the present time about 10 percent of Earth's land surface is covered by glaciers. Present-day glaciers are found in Antarctica, in Greenland, and at high elevations on all the continents except Australia. In the recent past, from about 2.4 million to about 10,000 years ago, nearly a third of Earth's land area was periodically covered by ice thousands of meters thick. In the much more distant past, other ice ages have occurred.

Paragraph1: Glaciers are slowly moving masses of ice that have accumulated on land in areas where more snowfalls during a year than melts. Snow falls as hexagonal crystals, but once on the ground, snow is soon transformed into a compacted mass of smaller, rounded grains. As the air space around them is lessened by compaction and melting, the grains become denser. With further melting, refreezing, and increased weight from newer snowfall above, the snow reaches a granular recrystallized stage intermediate between flakes and ice known as firn. With additional time, pressure, and refrozen meltwater from above, the small firn granules become larger, interlocked crystals of blue glacial ice. When the ice is thick enough, usually over 30 meters, the weight of the snow and firn will cause the ice crystals toward the bottom to become plastic and to flow outward or downward from the area of snow accumulation.

1. The word “interlocked” in the passage is closest in meaning to
 - intermediate
 - linked
 - frozen
 - fully developed
2. According to paragraph 1, which of the following does NOT describe a stage in the development of firn?
 - Hexagonal crystals become larger and interlock to form a thick layer.
 - Snow crystals become compacted into grains.
 - Granules recrystallize after melting, refreezing, and further compaction.
 - Grains become denser owing to reduced air space around them.

Paragraph2: Glaciers are open systems, with snow as the system’s input and meltwater as the system’s main output. The glacial system is governed by two basic climatic variables: precipitation and temperature. For a glacier to grow or maintain its mass, there must be sufficient snowfall to match or exceed the annual loss through melting, evaporation, and calving, which occurs when the glacier loses solid chunks as icebergs to the sea or to large lakes. If summer temperatures are high for too long, then all the snowfall from the previous winter will melt. Surplus snowfall is essential for a glacier to develop. A surplus allows snow to accumulate and for the pressure of snow accumulated over the years to transform buried snow into glacial ice with a depth great enough for the ice to flow. Glaciers are sometimes classified by temperature as faster-flowing temperate glaciers or as slower-flowing polar glaciers.

3. The word “match” in the passage is closest in meaning to
 - measure
 - enlarge
 - approximate
 - equal
4. The word “transform” in the passage is closest in meaning to
 - break
 - push
 - change
 - extend
5. According to paragraph 2, surplus snow affects a glacier in all the following ways EXCEPT:
 - It provides the pressure needed to cause glacial ice to flow.
 - It offsets losses of ice due to melting, evaporation, and calving.
 - It brings about the formation of firn in the snow it buries.
 - It results in temperate glaciers that are thicker than polar glaciers.

6. Paragraph 2 implies that which of the following conditions produces the fastest moving glaciers?

- A climate characteristic of the polar regions
- A thick layer of ice in a temperate climate
- Long, warm summers
- Snow, firn, and ice that have been buried for several years

Paragraph3: Glaciers are part of Earth's hydrologic cycle and are second only to the oceans in the total amount of water contained. About 2 percent of Earth's water is currently frozen as ice. Two percent may be a deceiving figure, however, since over 80 percent of the world's freshwater is locked up as ice in glaciers, with the majority of it in Antarctica. The total amount of ice is even more awesome if we estimate the water released upon the hypothetical melting of the world's glaciers. Sea level would rise about 60 meters. This would change the geography of the planet considerably. In contrast, should another ice age occur, sea level would drop drastically. During the last ice age, sea level dropped about 120 meters.

7. The word "deceiving" in the passage is closest in meaning to

- approximate
- exaggerated
- unusual
- misleading

8. Why does the author consider the hypothetical melting of the world's glaciers?

- To contrast the effects of this event with the opposite effects of a new ice age
- To emphasize how much water is frozen in glaciers
- To illustrate the disastrous effects of a warming trend
- To support the claim that glaciers are part of Earth's hydrologic cycle

9. The discussion in paragraph 3 answers all the following questions EXCEPT:

- Where is most of Earth's freshwater?
- What effect would a new ice age have on sea levels?
- What is the total amount of water in Earth's oceans?
- How much of Earth's water is in ice?

Paragraph4: When snowfalls on high mountains or in polar regions, it may become part of the glacial system. Unlike rain, which returns rapidly to the sea or atmosphere, the snow that becomes part of a glacier is involved in a much more slowly cycling system. Here water may be stored in ice form for hundreds or even hundreds of thousands of years before being released again into the liquid water system as meltwater. In the meantime, however, this ice is not static. Glaciers move slowly across the land with tremendous energy, carving into even the hardest rock formations and thereby reshaping the landscape as they engulf, push, drag, and finally deposit rock debris in places far from its original location. As a result, glaciers create a great variety of landforms that remain long after the surface is released from its icy covering.

10. The word "static" in the passage is closest in meaning to

- unchanging
- usable
- thick
- harmless

11. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- As a glacier moves, it leaves behind rock formations that have been engulfed, pushed, and dragged by the glacier.
- Glaciers reshape the landscape by carving into rock and transporting the resulting debris to distant locations.
- Glaciers carve the hardest rock formations with great energy and slowly reshape them into debris.
- The tremendous energy of slowly moving glaciers transports and finally deposits rock debris into large rock formations.

Paragraph5: Throughout most of Earth's history, glaciers did not exist, but at the present time about 10 percent of Earth's land surface is covered by glaciers. Present-day glaciers are found in Antarctica, in Greenland, and at high elevations on all the continents except Australia. In the recent past, from about 2.4 million to about 10,000 years ago, nearly a third of Earth's land area was periodically covered by ice thousands of meters thick. In the much more distant past, other ice ages have occurred.

12. According to paragraph 5, in what way is the present time unusual in the history of Earth?

- There are glaciers.
- More land is covered by glaciers than at anytime in the past.
- There is no ice age.
- No glaciers are found in Australia.

Paragraph1: Glaciers are slowly moving masses of ice that have accumulated on land in areas where more snowfalls during a year than melts. Snow falls as hexagonal crystals, but once on the ground, snow is soon transformed into a compacted mass of smaller, rounded grains. ■As the air space around them is lessened by compaction and melting, the grains become denser. ■With further melting, refreezing, and increased weight from newer snowfall above, the snow reaches a granular recrystallized stage intermediate between flakes and ice known as firn. ■With additional time, pressure, and refrozen meltwater from above, the small firn granules become larger, interlocked crystals of blue glacial ice. ■When the ice is thick enough, usually over 30 meters, the weight of the snow and firn will cause the ice crystals toward the bottom to become plastic and to flow outward or downward from the area of snow accumulation.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Firn has the appearance of wet sugar, but it is almost as hard as ice.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the **THREE** answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. This question is worth 2 points.

Glaciers are part of Earth's hydrologic cycle.

-
-
-

Answer Choices

○Glaciers, which at present contain 80 percent of Earth's freshwater, form when accumulated snow is compressed and recrystallized into ice over a period of years.

○When there are glaciers on Earth, water is cycled through the glacier system, but the cycle period may be hundreds of thousands of years during periods of ice ages.

○The glacial system is governed by precipitation and temperature in such a way that glaciers cannot form in temperate latitudes.

○When glacial ice reaches a depth of 30 meters, the weight of the ice causes ice crystals at the bottom to flow, and the resulting movement of the glacier carves the landscape.

○If global warming melted the world's glaciers, sea level would rise about 60 meters worldwide.

○Glaciers have had little effect on Earth's surface because only 2 percent of Earth's water is currently contained in glaciers, and there are fewer glaciers now than at most times in the past.

参考答案:

1. ○2
2. ○1
3. ○4
4. ○3
5. ○4
6. ○2
7. ○4
8. ○2
9. ○3
10. ○1
11. ○2
12. ○1
13. ○3
14. Glaciers, which at present...
 - When there are glaciers...
 - When glacial ice reaches...

冰川的形成

冰川是一种缓慢移动的巨大的冰块，这种冰块是由于每年降雪多于融化而积累起来的。那些如六角晶体的降雪一旦飘落在地表，雪花就迅速压缩成大量的小而圆的颗粒。由于压缩与融化，这些颗粒周围空气空间也随之减少。随着进一步的融化，再结冰，以及承受位于上方的新的降雪的重量，这些积雪达到了一种介于冰片与冰块的中间阶段，该阶段可使颗粒物再次形成晶状体，这个阶段被称作积雪过程。随着不断增加的时间、压力和那些位于上方的融雪重新结冰后，那些较小的积雪颗粒开始变大并与透明的蓝色的冰层相连接。当这些冰块足够厚的时候，往往是超过 **30** 米，积雪的重量就会使这些冰晶朝着底部变得具有可塑性，并且会从有积雪的地方流入或者流出。

冰川是全球水循环的一部分并且冰川是一个开放的系统，降雪作为这个系统的输入物，融化作为主要的输出物。冰川系统主要由两个基本的气候变量所控制：降雨和温度。为了保持或者增加一个冰川的体积，它就必须拥有足够的降雪量，这些降雪量需要能够抵消或者超过每一年因为融雪、蒸发或者以海洋和湖泊中的冰山形式的裂冰的数量。如果夏季温度过高，所有的上一季的降雪就都会融化。对于冰川的形成，剩余的降雪就非常重要。有剩余的积雪就能够积累，并且由于多年的积雪形成的压力使得雪被埋在一个相当深的冰川里，这个深度可以使冰块流动。冰川有时会被按照温度分为快速流动冰川和慢速流动极地冰川。

是仅次于海洋的第二大水源。地球上有大约百分之二的水源目前处于冰冻状态。但是，百分之二有可能是一个欺骗性的数据，因为全球有超过百分之八十的淡水以冰块的形态存在于冰川中，其中绝大多数的在南极洲。如果我们估算理论上全球冰川融化后所释放的水量，那么冰块的总量会是一个让人叹为观止的数量。海平面将会上升差不多 **60** 米。这会显著的改变星球的地理属性。相反的，如果另一个冰川时代来临，海平面会急速的下降。在最近的一个冰河时代，海平面下降了差不多 **120** 米。

当在高山或者极地地区降雪时，这些降雪会形成冰川系统的一部分。不像是降雨，非常快的返回至海洋或者大气中，降雪要成为冰川的一部分需要一个非常缓慢的循环系统。在这里，水会以冰的形态存在几百上千年，直到作为融水释放进入流水系统。但是，同时冰并不是静止的。冰川在巨大的能量伴随下在陆地上缓慢的移动，甚至切碎最坚硬的岩石，从而在吞没、推动、拉拽直到最后在离原址遥远的地方沉淀下这些岩石的残余物，在这个过程中它重新塑造了地形地貌。所以，冰川创造出了非常多的地形，这些地形保持不变直到有冰层覆盖在其表面。

纵观地球的大部分历史，冰川并没有存在，直到最近才有百分之十的冰川覆盖在地表。目前，在南极洲、格陵兰岛、以及除了澳大利亚的高纬度地区才能找到冰川。在不久的过去，**24** 万年至 **1** 万年前，有差不多三分之一的地表被上千米厚的冰层定期的覆盖。在更遥远的过去，其他冰川时代也存在过。

《新托福真题详解--阅读分卷》（第三册）中将包含 **TPO16-22** 的题目解析

TPO-16

Trade and the Ancient Middle East

Trade was the mainstay of the urban economy in the Middle East, as caravans negotiated the surrounding desert, restricted only by access to water and by mountain ranges. This has been so since ancient times, partly due to the geology of the area, which is mostly limestone and sandstone, with few deposits of metallic ore and other useful materials. Ancient demands for obsidian (a black volcanic rock useful for making mirrors and tools) led to trade with Armenia to the north, while jade for cutting tools was brought from Turkistan, and the precious stone lapis lazuli was imported from Afghanistan. One can trace such expeditions back to ancient Sumeria, the earliest known Middle Eastern civilization. Records show merchant caravans and trading posts set up by the Sumerians in the surrounding mountains and deserts of Persia and Arabia, where they traded grain for raw materials, such as timber and stones, as well as for metals and gems.

Reliance on trade had several important consequences. Production was generally in the hands of skilled individual artisans doing piecework under the tutelage of a master who was also the shop owner. In these shops differences of rank were blurred as artisans and masters labored side by side in the same modest establishment, were usually members of the same guild and religious sect, lived in the same neighborhoods, and often had assumed (or real) kinship relationships. The worker was bound to the master by a mutual contract that either one could repudiate, and the relationship was conceptualized as one of partnership.

This mode of craft production favored the growth of self-governing and ideologically egalitarian craft guilds everywhere in the Middle Eastern city. These were essentially professional associations that provided for the mutual aid and protection of their members, and allowed for the maintenance of professional standards. The growth of independent guilds was furthered by the fact that surplus was not a result of domestic craft production but resulted primarily from international trading; the government left working people to govern themselves, much as shepherds of tribal confederacies were left alone by their leaders. In the multiplicity of small-scale local egalitarian or quasi-egalitarian organizations for fellowship, worship, and production that flourished in this laissez-faire environment, individuals could interact with one another within a community of harmony and ideological equality, following their own popularly elected leaders and governing themselves by shared consensus while minimizing distinctions of wealth and power.

The mercantile economy was also characterized by a peculiar moral stance that is typical of people who live by trade—an attitude that is individualistic, calculating, risk taking, and adaptive to circumstances. As among tribespeople, personal relationships and a careful weighing of character have always been crucial in a mercantile economy with little regulation, where one's word is one's bond and where informal ties of trust cement together an international trade network. Nor have merchants and artisans ever had much tolerance for aristocratic professions of moral superiority, favoring instead an egalitarian ethic of the open market, where steady hard work, the loyalty of one's fellows, and entrepreneurial skill make all the difference. And, like the pastoralists, Middle Eastern merchants and artisans unhappy with their environment could simply pack up and leave for greener pastures—an act of self-assertion wholly impossible in most other civilizations throughout history.

Dependence on long-distance trade also meant that the great empires of the Middle East were built both literally and figuratively on shifting sand. The central state, though often very rich and very populous, was intrinsically fragile,

since the development of new international trade routes could undermine the monetary base and erode state power, as occurred when European seafarers circumvented Middle Eastern merchants after Vasco da Gama's voyage around Africa in the late fifteenth century opened up a southern route. The ecology of the region also permitted armed predators to prowl the surrounding barrens, which were almost impossible for a state to control. Peripheral peoples therefore had a great advantage in their dealings with the center, making government authority insecure and anxious.

Paragraph 1: Trade was the mainstay of the urban economy in the Middle East, as caravans negotiated the surrounding desert, restricted only by access to water and by mountain ranges. This has been so since ancient times, partly due to the geology of the area, which is mostly limestone and sandstone, with few deposits of metallic ore and other useful materials. Ancient demands for obsidian (a black volcanic rock useful for making mirrors and tools) led to trade with Armenia to the north, while jade for cutting tools was brought from Turkistan, and the precious stone lapis lazuli was imported from Afghanistan. One can trace such expeditions back to ancient Sumeria, the earliest known Middle Eastern civilization. Records show merchant caravans and trading posts set up by the Sumerians in the surrounding mountains and deserts of Persia and Arabia, where they traded grain for raw materials, such as timber and stones, as well as for metals and gems.

1. According to paragraph 1, why has trade been so important throughout the history of the Middle East?
 - The rare and valuable metals and stones found in Middle Eastern deserts have always been in high demand in surrounding areas.
 - Growing conditions throughout the Middle East are generally poor, forcing Middle Eastern people to depend on imported grain.
 - Many useful and decorative raw materials cannot be found naturally in the Middle East but are available from neighboring regions.
 - Frequent travel, due to limited water supplies in the Middle East, created many opportunities for trade with neighboring societies.

Paragraph 2: Reliance on trade had several important consequences. Production was generally in the hands of skilled individual artisans doing piecework under the tutelage of a master who was also the shop owner. In these shops differences of rank were blurred as artisans and masters labored side by side in the same modest establishment, were usually members of the same guild and religious sect, lived in the same neighborhoods, and often had assumed (or real) kinship relationships. The worker was bound to the master by a mutual contract that either one could repudiate, and the relationship was conceptualized as one of partnership.

2. The word "repudiate" in the passage is closest in meaning to
 - respect
 - reject
 - review
 - revise
3. According to paragraph 2, how did Middle Eastern shop owners treat their workers?
 - Workers were ranked according to their skill level, with the most-experienced artisans becoming partial owners of the shop.
 - Shop owners treated different workers differently depending on how much the workers had in common with their masters.
 - Workers were bound to their masters by unbreakable contracts that strictly defined the terms of their partnership.

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- The shop owner worked alongside the workers and often considered them partner and members of the family.

Paragraph 3: This mode of craft production favored the growth of self-governing and ideologically egalitarian craft guilds everywhere in the Middle Eastern city. These were essentially professional associations that provided for the mutual aid and protection of their members, and allowed for the maintenance of professional standards. The growth of independent guilds was furthered by the fact that surplus was not a result of domestic craft production but resulted primarily from international trading; the government left working people to govern themselves, much as shepherds of tribal confederacies were left alone by their leaders. In the multiplicity of small-scale local egalitarian or quasi-egalitarian organizations for fellowship, worship, and production that flourished in this laissez-faire environment, individuals could interact with one another within a community of harmony and ideological equality, following their own popularly elected leaders and governing themselves by shared consensus while minimizing distinctions of wealth and power.

4. The author includes the information that surplus was not a result of domestic craft production but resulted primarily from international trading in order to

- support the claim that the mode of production made possible by the craft guilds was very good for trade
- contrast the economic base of the city government with that of the tribal confederacies
- provide a reason why the government allowed the guilds to be self-controlled
- suggest that the government was missing out on a valuable opportunity to tax the guilds

5. According to paragraph 3, all of the following are true of the Middle Eastern craft guilds EXCEPT:

- The guilds were created to support workers and to uphold principles of high-quality craft production.
- Each guild was very large and included members from a broad geographic area.
- The leaders of the guilds were chosen by popular vote.
- All guild members were treated as equals.

6. The word “consensus” in the passage is closest in meaning to

- authority
- responsibility
- custom
- agreement

Paragraph 4: The mercantile economy was also characterized by a peculiar moral stance that is typical of people who live by trade—an attitude that is individualistic, calculating, risk taking, and adaptive to circumstances. As among tribes people, personal relationships and a careful weighing of character have always been crucial in a mercantile economy with little regulation, where one's word is one's bond and where informal ties of trust cement together an international trade network. Nor have merchants and artisans ever had much tolerance for aristocratic professions of moral superiority, favoring instead an egalitarian ethic of the open market, where steady hard work, the loyalty of one's fellows, and entrepreneurial skill make all the difference. And, like the pastoralists, Middle Eastern merchants and artisans unhappy with their environment could simply pack up and leave for greener pastures—an act of self-assertion wholly impossible in most other civilizations throughout history.

7. According to paragraph 4, which of the following was NOT necessary for success in the mercantile economy?

- Good business sense
- Reliable associates
- Family wealth

○Constant effort

8. Which of the sentences below best expresses the essential information in the highlighted sentence the passage? Incorrect choices change the meaning in important ways or leave out essential information.

○Tribes people were comfortable forming personal relationships with merchants, who, like them, were bound by their promises to one another.

○Because trade was not formally regulated, merchants were careful about whom they trusted and often conducted business with people they knew personally.

○While trade among merchants relied somewhat on regulation, among tribes people trade was based on personal relationships and careful character evaluation.

○Because tribes people were bound only by their promises to one another, personal relationships were formed only after careful weighing of character.

9. The word “ethic” in the passage is closest in meaning to

○set of moral principles

○division of labor

○economic system

○test of character

10. According to paragraph 4, what choice did Middle Eastern merchants and artisans have that many other people have not had?

○If they were unhappy in the mercantile environment, they could draw on personal connections to find a different kind of work.

○They were allowed to assert their opinions without having to listen to aristocratic professions of moral superiority.

○Following the example of the pastoralists, they could demand, and receive, better working conditions.

○If they didn't like their environment, they could move somewhere else.

Paragraph 5: Dependence on long-distance trade also meant that the great empires of the Middle East were built both literally and figuratively on shifting sand. The central state, though often very rich and very populous, was intrinsically fragile, since the development of new international trade routes could undermine the monetary base and erode state power, as occurred when European seafarers circumvented Middle Eastern merchants after Vasco da Gama's voyage around Africa in the late fifteenth century opened up a southern route. The ecology of the region also permitted armed predators to prowl the surrounding barrens, which were almost impossible for a state to control. Peripheral peoples therefore had a great advantage in their dealings with the center, making government authority insecure and anxious.

11. The word “intrinsically” in the passage is closest in meaning to

○fundamentally

○surprisingly

○consequently

○particularly

12. In paragraph 5, why does the author mention the new trade route opened up by Vasco da Gama's fifteenth century voyage around Africa?

○To provide evidence that European seafarers took every opportunity to bypass Middle Eastern merchants

○To present an instance in which Middle Eastern states lost money and power because of their reliance on long-distance trade

○To argue this new route became necessary when European seafarers wanted to avoid Middle Eastern states whose central power had begun to erode

○To explain how da Gama helped European traders avoid the dangerous predators prowling the areas surrounding Middle Eastern cities

Paragraph2: Reliance on trade had several important consequences. ■Production was generally in the hands of skilled individual artisans doing piecework under the tutelage of a master who was also the shop owner. ■In these shops differences of rank were blurred as artisans and masters labored side by side in the same modest establishment, were usually members of the same guild and religious sect, lived in the same neighborhoods, and often had assumed (or real) kinship relationships. ■The worker was bound to the master by a mutual contract that either one could repudiate, and the relationship was conceptualized as one of partnership. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

For one thing, it created a demand for finished goods to be sold both locally and abroad.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Since ancient times, reliance on trade has shaped the culture and organizational structure of Middle Eastern societies.

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-
-

Answer Choices

1. Persian and Arabian merchants traveled great distances to sell their finished goods at the marketplaces of ancient Sumeria.

2. Revenue from trade was unevenly distributed, causing Middle Eastern societies to be characterized by growing distinctions in wealth and power.

3. Qualities that were valued in the mercantile economy included individualism, hard work, loyalty, and the willingness to take risks.

4. As production increased, centralized control over production also increased, leading in turn to more-centralized control over fellowship and worship.

5. Crafts were produced by skilled artisans working in close, egalitarian relationships with their masters and other fellow guild members.

6. The stability of Middle Eastern governments was threatened by their lack of control over international trade patterns and over their own peripheral territories.

参考答案:

1. ○3

2. ○2

3. ○4

4. ○3

5. ○2

6. ○4

7. ○3

8. ○2

9. ○1

10. ○4

11. ○1

12. ○2

13. ○1

14. Qualities that were

Crafts were produced

The stability of Middle

古代中东与贸易

自从中东地区的商旅们成功的越过了环绕着他们的戈壁，而剩下的障碍仅仅是水路和山峦后，贸易就成为了中东地区城市经济的主旋律。这种贸易活动可以追溯到很久远的年代，使中东的贸易如此活跃的很大一部分原因可能是中东地区的地质环境---多为沙石和石灰石，只有少得可怜的金属矿藏以及其他一些在古代可以作为原材料的黑曜石（一种可以用来做镜子和工具的火山石），而由于资源的短缺导致了中东地区与北方的亚美尼亚的贸易，与土耳其斯坦的玉石进口贸易，以及与阿富汗地区的比较稀有贵重的琉璃青金石进口贸易。其中的最早的甚至有古代萨摩亚的探险足迹，这可能是已知的最为古老的中东文明了。研究结果显示：商队和贸易往来是由居住在群山环绕和沙漠包围的古波斯和阿拉伯半岛的古萨摩亚人建立的。而他们的这么做是为了获取原材料，像原木和石料，以及金属和矿石。

对于贸易的依赖导致了很多十分重大的影响。生产工作一般是在监工同时也是店铺老板的监视下通过工匠个体手工完成所需要的工序。在这样的店铺中，阶层的差异是很模糊的，因为工匠和监工在同一个相对适度的作坊中一起劳动的，而且通常一个组中成员的宗教信仰的派别又都是相同的，所住的地方有地方又是街坊，彼此之间还很有可能（没准真的）有一些亲戚关系。工人和监工之间有共同的约定，任一方都可以终止这种关系，而这种合伙关系成为了某种合作关系。

这种有益于自制制度成长的生产模式和人人平等的意识形态的作坊在中东的城市里遍地都是。他们有一个非常重要的机构就是提供必要的辅助和对组织成员的保护，同时维持比较高的目标。这种独立作坊的成长的源自一个更加深入的事实，那就是这种作坊的发展并不是因为国内工艺生产的发展而其恰恰是由国际贸易所推动的。政府让辛勤工作的人们自己去管理自己的事物，这个制度和部落联盟中的头人让部落的牧羊人们离群索居一样。对于友谊祭祀和生产等要素比较复杂的小型地方平等主义团体或是类似的平等主义的组织在这种自由放任的政策下发展的非常繁盛，个人与在同一群落中的另一名成员平等，友善的互动，追随着他们自己成员公选处的领导同时通过分享意见的同时缩小财富与权力的方式管理他们自己。

这种重商形式的经济模式也通过处在浓厚交易氛围中的人们所标榜的特定道德榜样表现了出来。这个观念中含有独立自主，精于计算，敢当风险和随遇而安的优秀品质。在部落成员之间，个人关系和谨慎的品质衡量永远都是这种重商主义经济形式不断调整过程中的焦点问题，那就是出口成契以及这种口头契约所堆砌起来的信任共同筑成了一个国际贸易网。从没有商人和工匠对于贵族的职业道德优越性如此的宽容，很好的巩固了开放市场中的平等主义，人们努力辛勤的工作，对于一个随从的忠诚，以及企业家性质的能力是所有这一切，都变得不同。同时，和畜牧文明差不多，中东的商人和工匠们对他们所处的环境不满意的话可以简单的收拾收拾行李去一个更加丰茂的牧场---纵观历史，如此自我主张的行动在大多数其他文明中是绝对无法想象的。

对远距离的贸易的依赖也意味着中东伟大的帝国得以建立在这片飘忽不定却又无比真实的沙土之中。中央帝国，尽管非常富足而又繁盛，可还是有本质上的缺点，因为新的国际贸易线路的出现是会动摇经济基础并腐蚀国家权力，15 世纪在达伽马航行绕过非洲开辟了南部航线后，欧洲的水手们就绕过了中东商人们而是用南部航线了。而这些地区的生态液使掠食者的猎捕行动游走于荒漠地区的四周，这些地区几乎无法被帝国控制。外边的人们因此得到了一个应对中央帝国绝好的机会，这一切使政府的主导地位风雨飘摇。

Development of the Periodic Table

The periodic table is a chart that reflects the periodic recurrence of chemical and physical properties of the elements when the elements are arranged in order of increasing atomic number (the number of protons in the nucleus). It is a monumental scientific achievement, and its development illustrates the essential interplay between observation, prediction, and testing required for scientific progress. In the 1800's scientists were searching for new elements. By the late 1860's more than 60 chemical elements had been identified, and much was known about their descriptive chemistry. Various proposals were put forth to arrange the elements into groups based on similarities in chemical and physical properties. The next step was to recognize a connection between group properties (physical or chemical similarities) and atomic mass (the measured mass of an individual atom of an element). When the elements known at the time were ordered by increasing atomic mass, it was found that successive elements belonged to different chemical groups and that the order of the groups in this sequence was fixed and repeated itself at regular intervals. Thus when the series of elements was written so as to begin a new horizontal row with each alkali metal, elements of the same groups were automatically assembled in vertical columns in a periodic table of the elements. This table was the forerunner of the modern table.

When the German chemist Lothar Meyer and (independently) the Russian Dmitry Mendeleev first introduced the periodic table in 1869-70, one-third of the naturally occurring chemical elements had not yet been discovered. Yet both chemists were sufficiently farsighted to leave gaps where their analyses of periodic physical and chemical properties indicated that new elements should be located. Mendeleev was bolder than Meyer and even assumed that if a measured atomic mass put an element in the wrong place in the table, the atomic mass was wrong. In some cases this was true. Indium, for example, had previously been assigned an atomic mass between those of arsenic and selenium. Because there is no space in the periodic table between these two elements, Mendeleev suggested that the atomic mass of indium be changed to a completely different value, where it would fill an empty space between cadmium and tin. In fact, subsequent work has shown that in a periodic table, elements should not be ordered strictly by atomic mass. For example, tellurium comes before iodine in the periodic table, even though its atomic mass is slightly greater. Such anomalies are due to the relative abundance of the "isotopes" or varieties of each element. All the isotopes of a given element have the same number of protons, but differ in their number of neutrons, and hence in their atomic mass. The isotopes of a given element have the same chemical properties but slightly different physical properties. We now know that atomic number (the number of protons in the nucleus), not atomic mass number (the number of protons and neutrons), determines chemical behavior.

Mendeleev went further than Meyer in another respect: he predicted the properties of six elements yet to be discovered. For example, a gap just below aluminum suggested a new element would be found with properties analogous to those of aluminum. Mendeleev designated this element "eka-aluminum" (eka is the Sanskrit word for "next") and predicted its properties. Just five years later an element with the proper atomic mass was isolated and named gallium by its discoverer. The close correspondence between the observed properties of gallium and Mendeleev's predictions for eka-aluminum lent strong support to the periodic law. Additional support came in 1885 when eka-silicon, which had also been described in advance by Mendeleev, was discovered and named germanium.

The structure of the periodic table appeared to limit the number of possible elements. It was therefore quite surprising when John William Strutt (Lord Rayleigh, discovered a gaseous element in 1894 that did not fit into the previous classification scheme. A century earlier, Henry Cavendish had noted the existence of a residual gas when oxygen and nitrogen are removed from air, but its importance had not been realized. Together with William Ramsay, Rayleigh isolated the gas (separating it from other substances into its pure state) and named it argon. Ramsay then studied a gas that was present in natural gas deposits and discovered that it was helium, an element whose presence in the Sun had been noted earlier in the spectrum of sunlight but that had not previously been known on Earth. Rayleigh and Ramsay postulated the existence of a new group of elements, and in 1898 other members of the series (neon,

krypton, and xenon) were isolated.

Paragraph 1: The periodic table is a chart that reflects the periodic recurrence of chemical and physical properties of the elements when the elements are arranged in order of increasing atomic number (the number of protons in the nucleus). It is a monumental scientific achievement, and its development illustrates the essential interplay between observation, prediction, and testing required for scientific progress. In the 1800's scientists were searching for new elements. By the late 1860's more than 60 chemical elements had been identified, and much was known about their descriptive chemistry. Various proposals were put forth to arrange the elements into groups based on similarities in chemical and physical properties. The next step was to recognize a connection between group properties (physical or chemical similarities) and atomic mass (the measured mass of an individual atom of an element). When the elements known at the time were ordered by increasing atomic mass, it was found that successive elements belonged to different chemical groups and that the order of the groups in this sequence was fixed and repeated itself at regular intervals. Thus when the series of elements was written so as to begin a new horizontal row with each alkali metal, elements of the same groups were automatically assembled in vertical columns in a periodic table of the elements. This table was the forerunner of the modern table.

1. The phrase interplay in the passage is closest in meaning to
 - sequence
 - interpretation
 - requirement
 - interaction
2. According to paragraph 1, what pattern did scientists notice when the known elements were written in order of increasing atomic mass?
 - The elements of the group of alkali metals were the first elements in the order of increasing atomic mass.
 - Repetition of the same atomic masses for elements in different groups appeared.
 - Elements with similar chemical properties appeared in the listing at regular intervals.
 - Elements were chemically most similar to those just before and after them in the order.

Paragraph 2: When the German chemist Lothar Meyer and (independently) the Russian Dmitry Mendeleyev first introduced the periodic table in 1869-70, one-third of the naturally occurring chemical elements had not yet been discovered. Yet both chemists were sufficiently farsighted to leave gaps where their analyses of periodic physical and chemical properties indicated that new elements should be located. Mendeleyev was bolder than Meyer and even assumed that if a measured atomic mass put an element in the wrong place in the table, the atomic mass was wrong. In some cases this was true. Indium, for example, had previously been assigned an atomic mass between those of arsenic and selenium. Because there is no space in the periodic table between these two elements, Mendeleyev suggested that the atomic mass of indium be changed to a completely different value, where it would fill an empty space between cadmium and tin. In fact, subsequent work has shown that in a periodic table, elements should not be ordered strictly by atomic mass. For example, tellurium comes before iodine in the periodic table, even though its atomic mass is slightly greater. Such anomalies are due to the relative abundance of the "isotopes" or varieties of each element. All the isotopes of a given element have the same number of protons, but differ in their number of neutrons, and hence in their atomic mass. The isotopes of a given element have the same chemical properties but slightly different physical properties. We now know that atomic number (the number of protons in the nucleus), not atomic mass number (the number of protons and neutrons), determines chemical behavior.

3. In paragraph 2, what is the author's purpose in presenting the information about the decision by Meyer and Mendeleyev to leave gaps in the periodic table?

-
- To illustrate their confidence that the organizing principles of the periodic table would govern the occurrence of all chemical elements
 - To indicate that some of their analyses of periodic physical and chemical properties were later found to be wrong
 - To support the idea that they were unwilling to place new elements in the periodic table
 - To indicate how they handled their disagreement about where to place new elements

4. What reason does the author provide for the claim that Mendeleyev was bolder than Meyer?

- Mendeleyev corrected incorrect information Meyer had proposed.
- Mendeleyev assumed that some information believed to be true about the elements was incorrect.
- Mendeleyev argued that Meyer had not left enough gaps in the periodic table.
- Mendeleyev realized that elements were not ordered by atomic mass in the periodic table.

5. According to paragraph 2, why did Mendeleyev suggest changing the atomic mass of indium?

- Because indium did not fit into the periodic table in the place predicted by its atomic mass.
- Because there was experimental evidence that the atomic mass that had been assigned to indium was incorrect.
- Because there was an empty space between cadmium and tin in the periodic table.
- Because the chemical properties of indium were similar to those of arsenic and selenium.

6. It can be inferred from paragraph 2 that tellurium comes before iodine in the periodic table even though tellurium's atomic mass is slightly greater because

- iodine is less common than tellurium
- both iodine and tellurium have no isotopes
- the chemical behavior of tellurium is highly variable
- the atomic number of tellurium is smaller than that of iodine

7. The phrase "abundance" in the passage is closest in meaning to

- weight
- requirement
- plenty
- sequence

Paragraph 3: Mendeleyev went further than Meyer in another respect: he predicted the properties of six elements yet to be discovered. For example, a gap just below aluminum suggested a new element would be found with properties analogous to those of aluminum. Mendeleyev designated this element "eka-aluminum" (eka is the Sanskrit word for "next") and predicted its properties. Just five years later an element with the proper atomic mass was isolated and named gallium by its discoverer. The close correspondence between the observed properties of gallium and Mendeleyev's predictions for eka-aluminum lent strong support to the periodic law. Additional support came in 1885 when eka-silicon, which had also been described in advance by Mendeleyev, was discovered and named germanium.

8. The phrase "analogous to" in the passage is closest in meaning to

- predicted by
- expected of
- similar to
- superior to

9. Paragraph 3 suggests that Mendeleyev predicted the properties of eka-aluminum on the basis of

- the atomic mass of aluminum

-
- the position of the gap in the periodic table that eka-aluminum was predicted to fill
 - the similarity of eka-aluminum to the other five missing elements
 - observation of the properties of gallium

10. It can be inferred from paragraph 3 that the significance of the discovery of gallium was that it supported which of the following?

- The idea that aluminum was correctly placed in the periodic table.
- Mendeleev's prediction that eka-silicon would be discovered next.
- The organizing principle of the periodic table.
- The idea that unknown elements existed.

Paragraph4: The structure of the periodic table appeared to limit the number of possible elements. It was therefore quite surprising when John William Strut (Lord Rayleigh, discovered a gaseous element in 1894 that did not fit into the previous classification scheme. A century earlier, Henry Cavendish had noted the existence of a residual gas when oxygen and nitrogen are removed from air, but its importance had not been realized. Together with William Ramsay, Rayleigh isolated the gas (separating it from other substances into its pure state) and named it argon. Ramsay then studied a gas that was present in natural gas deposits and discovered that it was helium, an element whose presence in the Sun had been noted earlier in the spectrum of sunlight but that had not previously been known on Earth. Rayleigh and Ramsay postulated the existence of a new group of elements, and in 1898 other members of the series (neon, krypton, and xenon) were isolated.

11. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Ramsay found evidence of helium in the spectrum of sunlight before he discovered that the element was also contained in natural gas deposits on Earth.
- Ramsay thought he had discovered a new element present in natural gas deposits, but he was wrong since that element had been previously observed elsewhere on Earth.
- After Ramsay had discovered a new element, called helium, in natural gas deposits on Earth, he also found evidence of its presence in the Sun.
- Ramsay later discovered that helium, an element that was already known to be present in the Sun, was also present in natural gas deposits on Earth.

Paragraph 4: The structure of the periodic table appeared to limit the number of possible elements. It was therefore quite surprising when John William Strut(Lord Rayleigh, discovered a gaseous element in 1894 that did not fit into the previous classification scheme. A century earlier, Henry Cavendish had noted the existence of a residual gas when oxygen and nitrogen are removed from air, but its importance had not been realized. Together with William Ramsay, Rayleigh isolated the gas (separating it from other substances into its pure state) and named it argon. Ramsay then studied a gas that was present in natural gas deposits and discovered that it was helium, an element whose presence in the Sun had been noted earlier in the spectrum of sunlight but that had not previously been known on Earth. Rayleigh and Ramsay postulated the existence of a new group of elements, and in 1898 other members of the series (neon, krypton, and xenon) were isolated.

12. The word "postulated" in the passage is closest in meaning to

- hypothesized
- discovered
- reported
- generated

Paragraph1: The periodic table is a chart that reflects the periodic recurrence of chemical and physical properties of the elements when the elements are arranged in order of increasing atomic number (the number of protons in the nucleus). It is a monumental scientific achievement, and its development illustrates the essential interplay between observation, prediction, and testing required for scientific progress. In the 1800's scientists were searching for new elements. By the late 1860's more than 60 chemical elements had been identified, and much was known about their descriptive chemistry. Various proposals were put forth to arrange the elements into groups based on similarities in chemical and physical properties. ■ The next step was to recognize a connection between group properties (physical or chemical similarities) and atomic mass (the measured mass of an individual atom of an element). ■ When the elements known at the time were ordered by increasing atomic mass, it was found that successive elements belonged to different chemical groups and that the order of the groups in this sequence was fixed and repeated itself at regular intervals. ■ Thus when the series of elements was written so as to begin a new horizontal row with each alkali metal, elements of the same groups were automatically assembled in vertical columns in a periodic table of the elements. ■ This table was the forerunner of the modern table.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

It was a natural Idea to break up the series of elements at the points where the sequence of chemical groups to which the elements belonged began to repeat itself.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

The periodic table introduced by Meyer and Mendeleyev was the forerunner of the modern table of elements.

-
-
-

Answer Choices

- Lord Rayleigh provided evidence that the structure of the I—Ramsay and Lord Rayleigh challenged the importance of the periodic table limited the potential number of elements.
- Chemical research that Henry Cavendish had done a century earlier.
- Isotopes of a given element have exactly the same physical properties, but their chemical properties are slightly different.
- Mendeleyev and Meyer organized the known elements into a F chart that revealed periodic recurrences of chemical and physical properties.
- Mendeleyev's successful prediction of the properties of then- r unknown elements lent support to the acceptance of the periodic law.
- In the 1890's, Ramsay and Lord Rayleigh isolated argon and proposed the existence of a new series of elements.

参考答案:

1. ○4
2. ○3
3. ○1
4. ○2
5. ○1
6. ○4
7. ○3
8. ○3
9. ○2
10. ○3
11. ○4
12. ○1
13. ○3
14. ○4, 5, 6

参考译文：

元素周期表的演进

元素周期表是一个反映元素由于原子数量的递增（质子数量）并反映在化学性质和物理性质的循环排列顺序的图表。它是一个里程碑式的科学发现，进一步证明了科学探索的过程中观察、预估和实证之间的根本联系。在 1800 年，科学家当时正在找寻新的元素。到了差不多 1860 年的时候，60 多种化学元素已经被发现，而他们中的许多元素的化学性质已经被确定。许多关于如何将这化学元素排列成组的设想都是基于元素的物理性质和化学性质。而随之而来的，他们又证实了元素的族群特性（物理或是化学上的相似性）和原子的质量有着联系（以一种元素的单个原子质量为标准进行衡量）。就在当时元素还是被认为主要是通过原子质量的增加而排列时，一些具备连续性的元素却分属不同的化学组，而在这种排列方式下，元素群组的顺序就没被修改并且变成了比较有规律的排列方式。然而当人们将每一新行以一个强碱性的金属元素开始并逐步将这一系列的元素排列出来时，元素周期表中同一组中的元素却自动的归到一个垂直的体积象限中。这个表格就是现代元素周期表的雏形。

当德国化学家 **lothar Meyer** 和（彼此独立的）俄国的门捷列夫在 1869 年第一次将元素周期表发布的时候，天然存在于自然界中的化学元素还有三分之一没被发现。这两位化学家都极富远见的注意到在他们所分析的周期表上的元素物理性和化学性之间留有缝隙，而这些缝隙暗示着那里可以找到新的元素。门捷列夫要比 **Meyer** 大胆的多，他甚至设想如果以原子的质量作为排列标准所排出的周期表中元素的位置不对的话，那么原子的质量也就是错的。在某些情况下，这个设想是对的。就拿铟举个例子，先前测量出的铟的原子质量在砷和硒之间。但是在周期表中，这两个元素之间是没有缝隙的，通过这个门捷列夫就提出铟的原子质量因为完全不同的体积而改变了，而这个体积的改变使得硒可以放置在镉和锡之间空着的位置。而事实上，接连不断的研究表明在元素周期表中，元素的顺序并不是由原子质量所决定的。例如在周期表中碲在碘的前面，但是原子质量却要轻的多。这种反常现象导致了每种元素的多样性和丰富的关系密切的同位素。所有这些同位素的质子数量都和那个既定的元素是一样的。但是区别就在于他们中子的数量，所以这才反映在他们的原子质量上，一个特定元素和它的同位素在化学性质上没有什么差异，而在物理性质上有一些细微的差异。我们现在知道这个其实是原子的数目（核心中质子的数量）而不是原子的质量决定着化学性。

门捷列夫在另一个研究上也比 **Meyer** 更加深入：他预测了六种元素的性质已经被发现。例如铝后面的一个空隙发现了一个与铝的性质有一些联系的新元素。门捷列夫将这个元素定义为“次铝”（**eka** 这个词在梵语中的意思是“下一个”）而且还预估了它的性质。仅仅在五年后确切原子质量的元素就被分离了出来，并被他的发现者称为“镓”。镓所表现出的特性和门捷列夫所预估的“次铝”为元素法则提供了一个强有力的支持。另一个例证是在 1885 年发现的镉，也是同样由门捷列夫所分析得出的“次硅”。

元素周期表框架的出现框定了可能存在的元素的数量。当约翰威廉姆斯杜尔特发现（雷利王，在 1894 年发现了气态元素不能适应之前的元素表。一个世纪以前，哈里卡文迪许就宣称当氧气和氮气从空气被移除后仍然有剩余的气体存在，但是这个重大发现却没人所注意到。和威廉姆拉姆齐共同分离出了一种气体（将之与其他物质隔离并存于一个真空的环境）并命名为氩。拉姆齐又研究了一种存在于自然界中的气体元素氦，这种元素存在于太阳中，并且早在光谱出现前就被注意到，但是之前并没有在地球上找到过。雷利和拉姆齐假定了一组新的元素，而且这组元素中的其他成员也在 1898 年被成功分离出来（氦，氖，氩）。

Planets in Our Solar System

The Sun is the hub of a huge rotating system consisting of nine planets, their satellites, and numerous small bodies, including asteroids, comets, and meteoroids. An estimated 99.85 percent of the mass of our solar system is contained within the Sun, while the planets collectively make up most of the remaining 0.15 percent. The planets, in order of their distance from the Sun, are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, and Pluto. Under the control of the Sun's gravitational force, each planet maintains an elliptical orbit and all of them travel in the same direction.

The planets in our solar system fall into two groups: the terrestrial (Earth-like) planets (Mercury, Venus, Earth, and Mars) and the Jovian (Jupiter-like) planets (Jupiter, Saturn, Uranus, and Neptune). Pluto is not included in either category, because its great distance from Earth and its small size make this planet's true nature a mystery.

The most obvious difference between the terrestrial and the Jovian planets is their size. The largest terrestrial planet, Earth has a diameter only one quarter as great as the diameter of the smallest Jovian planet, Neptune, and its mass is only one seventeenth as great. Hence, the Jovian planets are often called giants. Also, because of their relative locations, the four Jovian planets are known as the outer planets, while the terrestrial planets are known as the inner planets. There appears to be a correlation between the positions of these planets and their sizes.

Other dimensions along which the two groups differ markedly are density and composition. The densities of the terrestrial planets average about 5 times the density of water, whereas the Jovian planets have densities that average only 1.5 times the density of water. One of the outer planets, Saturn, has a density of only 0.7 that of water, which means that Saturn would float in water. Variations in the composition of the planets are largely responsible for the density differences. The substances that make up both groups of planets are divided into three groups—gases, rocks, and ices—based on their melting points. The terrestrial planets are mostly rocks: dense rocky and metallic material, with minor amounts of gases. The Jovian planets, on the other hand, contain a large percentage of the gases hydrogen and helium, with varying amounts of ices: mostly water, ammonia, and methane ices.

The Jovian planets have very thick atmospheres consisting of varying amounts of hydrogen, helium, methane, and ammonia. By comparison, the terrestrial planets have meager atmospheres at best. A planet's ability to retain an atmosphere depends on its temperature and mass. Simply stated, a gas molecule can "evaporate" from a planet if it reaches a speed known as the escape velocity. For Earth, this velocity is 11 kilometers per second. Any material, including a rocket, must reach this speed before it can leave Earth and go into space. The Jovian planets, because of their greater masses and thus higher surface gravities, have higher escape velocities (21-60 kilometers per second) than the terrestrial planets. Consequently, it is more difficult for gases to "evaporate" from them. Also, because the molecular motion of a gas depends on temperature, at the low temperatures of the Jovian planets even the lightest gases are unlikely to acquire the speed needed to escape. On the other hand, a comparatively warm body with a small surface gravity, like Earth's moon, is unable to hold even the heaviest gas and thus lacks an atmosphere. The slightly larger terrestrial planets Earth, Venus, and Mars retain some heavy gases like carbon dioxide, but even their atmospheres make up only an infinitesimally small portion of their total mass.

The orderly nature of our solar system leads most astronomers to conclude that the planets formed at essentially the same time and from the same material as the Sun. It is hypothesized that the primordial cloud of dust and gas from which all the planets are thought to have condensed had a composition somewhat similar to that of Jupiter. However, unlike Jupiter, the terrestrial planets today are nearly void of light gases and ices. The explanation may be that the terrestrial planets were once much larger and richer in these materials but eventually lost them because of these bodies' relative closeness to the Sun, which meant that their temperatures were relatively high.

1. According to the passage, each of the following statements comparing terrestrial planets with Jovian planets is true EXCEPT:

-
- Terrestrial planets are closer to the Sun than Jovian planets.
 - Terrestrial planets have smaller diameters than Jovian planets.
 - Terrestrial planets have smaller masses than Jovian planets.
 - Terrestrial planets travel in a different direction than Jovian planets do.

Paragraph 4: Other dimensions along which the two groups differ **markedly** are density and composition. The densities of the terrestrial planets average about 5 times the density of water, whereas the Jovian planets have densities that average only 1.5 times the density of water. One of the outer planets, Saturn, has a density of only 0.7 that of water, which means that Saturn would float in water. Variations in the composition of the planets are largely responsible for the density differences. The substances that make up both groups of planets are divided into three groups—gases, rocks, and ices—based on their melting points. The terrestrial planets are mostly rocks: dense rocky and metallic material, with minor amounts of gases. The Jovian planets, on the other hand, contain a large percentage of the gases hydrogen and helium, with varying amounts of ices: mostly water, ammonia, and methane ices.

2. The word **markedly** in the passage is closest in meaning to
 - Essentially
 - Typically
 - Consistently
 - noticeably
3. Paragraph 4 mentions which of the following as a reason why terrestrial planets are dense?
 - They are made up of three groups of substances.
 - They are composed mainly of rocky and metallic materials.
 - They contain more ice than Jovian planets.
 - They contain relatively small amounts of water.
4. Paragraph 4 supports each of the following statements about Saturn EXCEPT:
 - It is less dense than any of the terrestrial planets.
 - It contains no rocky material.
 - It contains ices.
 - It contains a large percentage of gases.

Paragraph 5: The Jovian planets have very thick atmospheres consisting of varying amounts of hydrogen, helium, methane, and ammonia. By comparison, the terrestrial planets have **meager** atmospheres at best. A planet's ability to retain an atmosphere depends on its temperature and mass. Simply stated, a gas molecule can "evaporate" from a planet if it reaches a speed known as the escape velocity. For Earth, this velocity is 11 kilometers per second. Any material, including a rocket, must reach this speed before it can leave Earth and go into space. The Jovian planets, because of their greater masses and thus higher surface gravities, have higher escape velocities (21-60 kilometers per second) than the terrestrial planets. Consequently, it is more difficult for gases to "evaporate" from them. Also, because the molecular motion of a gas depends on temperature, at the low temperatures of the Jovian planets even the lightest gases are unlikely to acquire the speed needed to escape. On the other hand, a comparatively warm body with a small surface gravity, like Earth's moon, is unable to hold even the heaviest gas and thus lacks an atmosphere. The slightly larger terrestrial planets Earth, Venus, and Mars retain some heavy gases like carbon dioxide, but even their atmospheres make up only an infinitesimally small portion of their total mass.

5. The word **meager** in the passage is closest in meaning to

-
- rich
 - thin
 - unique
 - complex

6. According to paragraph 5, which of the following statements is true of both Jovian and terrestrial planets?

- The thicker the atmosphere, the smaller the planet's mass
- The more varied the gases in the atmosphere, the higher the temperature
- The higher the surface gravity, the higher the escape velocity
- The less the atmosphere contributes to the total mass, the lower the temperature

7. According to paragraph 5, what is a major reason that Jovian planets have much thicker atmospheres than terrestrial planets do?

- Jovian planets have lower surface gravities
- Jovian planets have lower temperatures
- Jovian planets have lower escape velocities
- Jovian planets' gas molecules have higher average speeds

8. Paragraph 5 supports which of the following statements about the ability of planets to retain gases?

- More-massive planets are less able to retain gases than less-massive ones.
- Planets are more likely to retain heavy gases than light gases.
- Jovian planets are unlikely to retain the lightest gases.
- Only terrestrial planets have been able to retain carbon dioxide.

Paragraph 6: The orderly nature of our solar system leads most astronomers to conclude that the planets formed at essentially the same time and from the same material as the Sun. It is hypothesized that the primordial cloud of dust and gas from which all the planets are thought to have condensed had a composition somewhat similar to that of Jupiter. However, unlike Jupiter, the terrestrial planets today are nearly void of light gases and ices. The explanation may be that the terrestrial planets were once much larger and richer in these materials but eventually lost them because of these bodies' relative closeness to the Sun, which meant that their temperatures were relatively high.

9. In calling the cloud of gas and dust from which the Sun and all the planets are thought to have condensed "primordial," the author means that the cloud was

- immense in size
- composed of similar particles
- present at the very beginning of our solar system's formation
- created from a great variety of different materials

10. The word eventually in the passage is closest in meaning to

- over time
- long ago
- simply
- certainly

11. According to paragraph 6, what is a possible explanation for the lack of light gases and ices on terrestrial planets?

- The location of terrestrial planets caused them to lose some of the materials they once contained.

- Terrestrial planets were formed much later than Jovian planets.
- The composition of terrestrial planets was different from that of Jupiter.
- Terrestrial planets were formed out of different material than the Sun was.

Paragraph 4: Other dimensions along which the two groups differ markedly are density and composition. The densities of the terrestrial planets average about 5 times the density of water, whereas the Jovian planets have densities that average only 1.5 times the density of water. One of the outer planets, Saturn, has a density of only 0.7 that of water, which means that Saturn would float in water. Variations in the composition of the planets are largely responsible for the density differences. ■ The substances that make up both groups of planets are divided into three groups—gases, rocks, and ices—based on their melting points. ■ The terrestrial planets are mostly rocks: dense rocky and metallic material, with minor amounts of gases. ■ The Jovian planets, on the other hand, contain a large percentage of the gases hydrogen and helium, with varying amounts of ices: mostly water, ammonia, and methane ices. ■

12. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

This explains their relatively low densities.

Where would the sentence best fit?

10. Directions: From the seven answer choices below, select the two phrases that correctly characterize the terrestrial planets and the three phrases that correctly characterize the Jovian planets. Drag each phrase you select into the appropriate column of the table. Two of the phrases will NOT be used. This question is worth 3 points.

terrestrial planets	Jovian planets
●	●
●	●
	●

Answer Choices

1. Have relatively small sizes
2. Are grouped in the same category as Pluto
3. Contain relatively high proportions of ices
4. Have relatively high temperatures
5. Have densities that are generally lower than the density of water
6. Have relatively high escape velocities
7. Have a composition closer to that of the cloud from which they condensed terrestrial

参考答案:

1. ○4
2. ○4
3. ○2
4. ○2
5. ○2
6. ○3
7. ○2
8. ○2
9. ○3
10. ○1
11. ○1

12. ○4

13. ○1,4 ○3,6,7

参考译文：

太阳系中的行星

太阳是这个由九大行星构成的巨大公转系统的核心，该系统中还有九大行星的卫星，和大量的小星体，包括小行星，彗星，和陨星体。我们所在的太阳系中，差不多百分之 **99.85** 的质量是太阳，与此同时，行星们共同组成了剩下的百分之 **0.15** 的大部分质量。这些行星们依据他们距离太阳的远近依次排列为：水星，金星，地球，火星，木星，土星，天王星，海王星，和冥王星。在太阳的引力作用下，每个行星都保持着椭圆形的轨道和相同的公转方向。

9 大行星分为两部分，一部分叫类地行星（和地球差不多）其中有（水星，金星，地球和火星），另一类叫类木行星（和木星差不多）包括（木星，土星，天王星，海王星），冥王星不属于这两个中的任何一个，因为它距离地球实在太远而它的体型又太小，所以无法得知冥王星的真实形态。

类地行星和类木行星最为明显的差别就是他们的体型。比如最大的类地行星地球的直径也不过是最小的类木行星海王星的四分之一大，而地球的质量更是只有可怜的 **17** 分之一。因此，类木行星通常又被称为巨行星。因为这四颗类木行星相互之间与地球的位置，他们也被我们称为外环行星，同时类地行星则被称作“内环行星”。这也是行星的位置与行星的尺寸所展现出的一些相关性。

两组行星另一些方面的不同中比较明显的就是密度和构成成分了。类地行星的密度的平均值大概是水的密度的五倍，而类木行星的密度大概只有水的密度的 **1.5** 倍。外环行星中的土星的密度只有水的 **0.7** 倍，也就是说，土星是可以浮在水面上的。行星的构成成分的组合也在很大程度上导致了密度的不同。两种行星都存在的物质根据他们的熔点可以划分为三种---气体，岩石和冰。类地行星大多数为岩石，致密的石块和金属性质的材料，以及较为稀薄的气体。类木行星，恰恰相反，包含较大比例的气态氢和氦，以及各种形态的冰，多数是水，氨和甲烷。

类木行星有非常致密的大气，这种大气是由大量的氢和氦，甲烷和氨所组成的。对比而言，类地行星的大气则要稀薄得多。一个行星抓住大气的的能力取决于它的温度和质量。简单来说，如果气体的速度达到了我们所知道的“逃逸速度”，那么一个气体分子可以从行星上“蒸发”。对于地球来讲，这个逃逸速度是每秒 **11** 千米。任何物质，包括火箭，必须要在离开地球之前达到这个速度才能进入外层空间。由于类木行星的质量巨大并因此产生了巨大的表面重力，类木行星的逃逸速度要比类地行星高得多（**21—60** 千米每秒）。结果就是气体更加的不容易从类木行星的表面“蒸发”。同理，因为气体分子的运动能力同时还取决于温度，所以在类木行星这样的低温环境下，即使是最轻的气体也无法达到所需要的逃逸速度。而从另一个角度讲，一个相对较热的物体再加上一个较小的表面重力，比如月亮，就无法留住哪怕是最重的气体，也因此没有大气层。这些稍微大一点的类地行星，比如地球，金星和火星保留住了一部分较重的气体比如二氧化碳之类的，但是即使是这样他们的大气构成也只有保留住相对于他们的质量而言极小比例的一部分大气。

我们太阳系比较有序的外部环境使大部分包括行星在内的天体基本上是在同一时间，并有同样的类似太阳的构成作为基本元素构成的。有一个假说认为在天地初开的时候，像木星那样尘埃和气体的聚合与压缩是所有行星产生的最初形态。然而，和木星不同的是，类地行星现在的气体和冰已经很少了。关于这个的解释是，也许类地行星在物质的构成上要远远比类木行星丰富和多样，而因为他们的位置太靠近太阳而使相对温度比较高而最终丢失了这些物质。

Europe's Early Sea Trade with Asia

In the fourteenth century, a number of political developments cut Europe's overland trade routes to southern and eastern Asia, with which Europe had had important and highly profitable commercial ties since the twelfth century. This development, coming as it did when the bottom had fallen out of the European economy, provided an impetus to a long-held desire to secure direct relations with the East by establishing a sea trade. Widely reported, if somewhat distrusted, accounts by figures like the famous traveler from Venice, Marco Polo, of the willingness of people in China to trade with Europeans and of the immensity of the wealth to be gained by such contact made the idea irresistible. Possibilities for trade seemed promising, but no hope existed for maintaining the traditional routes over land. A new way had to be found.

The chief problem was technological: How were the Europeans to reach the East? Europe's maritime tradition had developed in the context of easily navigable seas—the Mediterranean, the Baltic, and, to a lesser extent, the North Sea between England and the Continent—not of vast oceans. New types of ships were needed, new methods of finding one's way, new techniques for financing so vast a scheme. The sheer scale of the investment it took to begin commercial expansion at sea reflects the immensity of the profits that such East-West trade could create. Spices were the most sought-after commodities. Spices not only dramatically improved the taste of the European diet but also were used to manufacture perfumes and certain medicines. But even high-priced commodities like spices had to be transported in large bulk in order to justify the expense and trouble of sailing around the African continent all the way to India and China.

The principal seagoing ship used throughout the Middle Ages was the galley, a long, low ship fitted with sails but driven primarily by oars. The largest galleys had as many as 50 oarsmen. Since they had relatively shallow hulls, they were unstable when driven by sail or when on rough water: hence they were unsuitable for the voyage to the East. Even if they hugged the African coastline, they had little chance of surviving a crossing of the Indian Ocean. Shortly after 1400, shipbuilders began developing a new type of vessel properly designed to operate in rough, open water: the caravel. It had a wider and deeper hull than the galley and hence could carry more cargo: increased stability made it possible to add multiple masts and sails. In the largest caravels, two main masts held large square sails that provided the bulk of the thrust driving the ship forward, while a smaller forward mast held a triangular-shaped sail, called a lateen sail, which could be moved into a variety of positions to maneuver the ship.

The astrolabe had long been the primary instrument for navigation, having been introduced in the eleventh century. It operated by measuring the height of the Sun and the fixed stars: by calculating the angles created by these points, it determined the degree of latitude at which one stood (The problem of determining longitude, though, was not solved until the eighteenth century.) By the early thirteenth century, Western Europeans had also developed and put into use the magnetic compass, which helped when clouds obliterated both the Sun and the stars. Also beginning in the thirteenth century, there were new maps refined by precise calculations and the reports of sailors that made it possible to trace one's path with reasonable accuracy. Certain institutional and practical norms had become established as well. A maritime code known as the Consulate of the Sea, which originated in the western Mediterranean region in the fourteenth century, won acceptance by a majority of seagoers as the normative code for maritime conduct; it defined such matters as the authority of a ship's officers, protocols of command, pay structures, the rights of sailors, and the rules of engagement when ships met one another on the sea-lanes. Thus by about 1400 the key elements were in place to enable Europe to begin its seaward adventure.

Paragraph 1: In the fourteenth century, a number of political developments cut Europe's overland trade routes to southern and eastern Asia, with which Europe had had important and highly profitable commercial ties since the twelfth century. This development, coming as it did when the bottom had fallen out of the European economy, provided an **impetus** to a long-held desire to secure direct relations with the East by establishing a sea trade. Widely reported, if somewhat distrusted, accounts by figures like the famous traveler from Venice, Marco Polo, of the willingness of people in China to trade with Europeans and of the immensity of the wealth to be gained by such contact made the idea irresistible. Possibilities for trade seemed promising, but no hope existed for maintaining the traditional routes over land. A new way had to be found.

1. The word **impetus** in the passage is closest in meaning to
 - Return
 - Opportunity
 - Stimulus
 - Obstacle
2. According to paragraph 1 why was it necessary to find a new way for European merchants to reach the East?
 - People in China were finally ready to trade with Europeans
 - The European economy was failing because there was no trade with the East
 - Traditional ways of trading with the East had become very costly
 - Commercial routes over land had become blocked because of political events

Paragraph 2: The chief problem was technological: How were the Europeans to reach the East? Europe's maritime tradition had developed in the context of easily navigable seas—the Mediterranean, the Baltic, and, to a lesser extent, the North Sea between England and the Continent—not of vast oceans. New types of ships were needed, new methods of finding one's way, new techniques for financing so vast a scheme. **The sheer scale of the investment it took to begin commercial expansion at sea reflects the immensity of the profits that such East-West trade could create. Spices were the most sought-after commodities.** Spices not only **dramatically** improved the taste of the European diet but also were used to manufacture perfumes and certain medicines. But even high-priced commodities like spices had to be transported in large bulk in order to justify the expense and trouble of sailing around the African continent all the way to India and China.

3. According to paragraph 2, what was the main difficulty Europeans had to overcome in order to develop a new way of trading with the East?
 - Europeans were unwilling to invest in large-scale commercial ventures.
 - Europeans lacked the means for navigating long distances across oceans.
 - Europeans were unwilling to experiment with new business techniques.
 - Europeans lacked knowledge about the commercial methods of other peoples.
4. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
 - The high cost to investors of developing trade by sea between East and West indicates the great size of the profits that such trade could produce.
 - The profits that could be created by sea trade between East and West were immense compared with the investment required to develop such trade.
 - The increase in commercial activity by using sea routes reflects the importance trade between East and West had for investors seeking great profits.

○Because people made large investments in sea commerce between East and West. They expected to make immense profits.

5. The word dramatically in the passage is closest in meaning to

- Artificially
- Greatly
- Immediately
- Regularly

6. It can be inferred from paragraph 2 that spices from Asia were desirable in Europe in the Middle Ages because they

- were easily transported in large quantities
- could not be produced in European countries
- could be traded for products such as perfumes and medicines
- were expected to increase in value over time

Paragraph 3: The principal seagoing ship used throughout the Middle Ages was the galley, a long, low ship fitted with sails but driven primarily by oars. The largest galleys had as many as 50 oarsmen. Since they had relatively shallow hulls, they were unstable when driven by sail or when on rough water: hence they were unsuitable for the voyage to the East. Even if they hugged the African coastline, they had little chance of surviving a crossing of the Indian Ocean. Shortly after 1400, shipbuilders began developing a new type of vessel properly designed to operate in rough, open water: the caravel. It had a wider and deeper hull than the galley and hence could carry more cargo: increased stability made it possible to add multiple masts and sails. In the largest caravels, two main masts held large square sails that provided the bulk of the thrust driving the ship forward, while a smaller forward mast held a triangular-shaped sail, called a lateen sail, which could be moved into a variety of positions to maneuver the ship.

7. According to paragraph 3, all of the following statements comparing the caravel with the galley are true EXCEPT:

- The caravel had fewer masts than the galley.
- The caravel had a wider hull than the galley.
- The caravel could carry more cargo than the galley.
- The caravel was more stable in rough water than the galley.

8. According to paragraph 3, what did the lateen sail contribute to the caravel as a sailing ship?

- It provided stability for the front part of the ship.
- It made it possible for the hull to be wider and deeper.
- It added considerably to the speed of the wind-driven ship.
- It improved the capacity of the ship to be guided.

Paragraph 4: The astrolabe had long been the primary instrument for navigation, having been introduced in the eleventh century. It operated by measuring the height of the Sun and the fixed stars: by calculating the angles created by these points, it determined the degree of latitude at which one stood (The problem of determining longitude, though, was not solved until the eighteenth century.) By the early thirteenth century, Western Europeans had also developed and put into use the magnetic compass, which helped when clouds obliterated both the Sun and the stars. Also beginning in the thirteenth century, there were new maps refined by precise calculations and the reports of sailors that made it possible to trace one's path with reasonable accuracy. Certain institutional and practical norms had become established as well. A maritime code known as the Consulate of the Sea, which originated in the western Mediterranean

region in the fourteenth century, won acceptance by a majority of sea goers as the normative code for maritime conduct; it defined such matters as the authority of a ship's officers, protocols of command, pay structures, the rights of sailors, and the rules of engagement when ships met one another on the sea-lanes. Thus by about 1400 the key elements were in place to enable Europe to begin its seaward adventure.

9. Why does the author include the information that Western Europeans had developed and put into use the magnetic compass

- To provide an example of an instrument that was developed after caravels had begun traveling across oceans
- To provide an example of an improvement that resulted directly from the invention of the astrolabe
- To identify one of the technological advances that made sea trade with the East possible
- To explain how the problem of determining longitude was solved

10. The word refined in the passage is closest in meaning to

- Completed
- Improved
- Drawn
- Checked

11. The word norms in the passage is closest in meaning to

- purposes
- skills
- activities
- rules

12. According to paragraph 4, which of the following is true of the maritime code developed in Europe in the fourteenth century?

- It mapped out lanes in the seas for trading ships to follow.
- It defined the ways in which people should behave at sea.
- It replaced an earlier code that could not be adapted to the sea trade with the East.
- It gave instructions on how to navigate a ship.

The chief problem was technological: How were the Europeans to reach the East? Europe's maritime tradition had developed in the context of easily navigable seas—the Mediterranean, the Baltic, and, to a lesser extent, the North Sea between England and the Continent—not of vast oceans. New types of ships were needed, new methods of finding one's way, new techniques for financing so vast a scheme. The sheer scale of the investment it took to begin commercial expansion at sea reflects the immensity of the profits that such East-West trade could create. ■ Spices were the most sought-after commodities. ■ Spices not only dramatically improved the taste of the European diet but also were used to manufacture perfumes and certain medicines. ■ But even high-priced commodities like spices had to be transported in large bulk in order to justify the expense and trouble of sailing around the African continent all the way to India and China. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

They were highly valued for a couple of reasons.

Where would the sentence best fit?

14. Directions: An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some

sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. This question is worth 2 points.

Because land routes to Asia had been cut off in the fourteenth century. Europeans had to find a new way to trade with Asia.

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-
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Answer Choices

1. Reports by travelers indicated that people in Asia were interested in renewing trade with Europeans.
2. For trade in Asian goods such as spices to be profitable.
3. European galleys were able to bring Asian goods across the these items needed to be transported in large quantities by Indian Ocean and around the African coastline.
4. Wind-driven caravels were developed to carry cargo across the oceans.
5. The development of maps, navigational instruments, and a maritime code of conduct provided crucial elements for long-distance navigation.
6. Europeans wanted to import spices from Asia in order to improve the taste of food and to make perfumes and medicines.

参考答案:

1. C
2. D
3. B
4. A
5. B
6. B
7. A
8. D
9. C
10. B
11. D
12. B
13. B
14. For trade...
Wind-driven...
The development...

欧亚地区早期的海洋贸易

14 世纪，政治的发展切断了欧洲大陆与南亚以及东亚的贸易路线，而在 12 世纪时欧洲就已经与东亚和南亚建立起了高度互利的商业纽带。这种政体的在将欧洲的经济带入谷底的同时，也提供了一个新的契机，那就激发了欧洲与东方建立一个海上的航路来确保两者之间不间断的贸易往来。如果大量的报告还有那么一点不可信的话，那么威尼斯著名的旅行家的描述就更为形象了。马可波罗带回了中国人希望和欧洲人通商的意愿和对于欧洲人来说只要一纸合约便可以获得的取之不尽的财富，所有的这一切，都让欧洲人无法抗拒。但是这样的好事儿在传统的商路被封死和新的航线建立起来之前，也就只能想想了。

最主要的问题其实还是技术：怎么才能从欧洲到达东方呢？欧洲的航海传统是在那些比较容易航行的海域中建立和发展起来的——地中海，波罗的海，以及一条比较狭长的海域——英格兰和欧洲大陆之间的北海，而这些海都不是什么广阔的大洋。所以，新型的航船是必须的，新的定位方法也是必要的，以及这些新技术所需要的财政支出也是十分巨大的。由于海上商业扩张而发展来的全新的发明标准反映出了东西方贸易所能创造出的无法想象的财富。香料开始变成最为普遍的日用品。因为香料显著提高了欧洲菜肴的口感同时也被应用于香水的制造和一些药品之中。但是即使是像香料这样的高价日用品也不得不大量的运输以平衡绕过非洲从中国和印度所花费的巨大的成本和麻烦。

中世纪最为主要的海船是单层甲板帆船，低矮狭长的船体能够使用帆，但是操纵主要还是靠桨。最大的单甲板帆船有 50 个划手，这么做是为使船相对更加的薄一些，这种帆船在海中或是深水中航行时并不稳定。因此它不适合航行在去往东方的航线上。1400 年后不久，即使是紧贴着非洲的海岸线行驶，这种船也很难穿越印度洋。造船工匠们开始研制一种严格用于水位较深而且是开放海域的新型船只——轻快帆船。这种船只拥有一个较之单层甲板船更加宽阔更加深厚的龙骨，这样可以运送更多的货物，同时可以提升稳定性，还能够多加一根复式桅杆和船帆。在最大型的轻快帆船上，有两根主桅杆撑起大块的船帆来提供足够的推力来推动帆船前进，同时有一个小型的后桅杆来撑起一块三角形船帆，这个船帆叫做三角帆，它是用来在移动中控制帆船行驶的方向的。

自从 11 世纪星象盘引入欧洲以来，已经成为了航海的基础工具之一。星象盘通过测定太阳和其他可以作为参照的星星的高度，来计算罗盘使用者与星体之间的夹角，并以此来确定测量者所处的纬度（而测量精度的难题，直到 18 世纪才得以解决）。在 13 世纪初，西欧人也开始使用指南针，通过指南针来帮助他们在有雾笼罩而无法观测到太阳和星星的情况下辨别方向。同样是开始于 13 世纪的还有新的更为精准的地图的绘制和航海日志，使航行变得可靠而准确。航海标准和实际操作指南也日趋完善。14 世纪一部起源自西地中海地区的海运法典在赢得了大多数水手们的认可后成为了进行海运所必须的管理指南。法典规定了一艘船的船长的职权范围，拟定命令的格式，设施的价格，水手们的权利，和当一艘船遇到另外一艘船时的交流方式。也正是这些重要的因素使欧洲人开始他们的海上冒险。

Animal Signals in the Rain Forest

The daytime quality of light in forests varies with the density of the vegetation, the angle of the Sun, and the amount of cloud in the sky. Both animals and plants have different appearances in these various lighting conditions. A color or pattern that is relatively indistinct in one kind of light may be quite conspicuous in another.

In the varied and constantly changing light environment of the forest, an animal must be able to send visual signals to members of its own species and at the same time avoid being detected by predators. An animal can hide from predators by choosing the light environment in which its pattern is least visible. This may require moving to different parts of the forest at different times of the day or under different weather conditions, or it may be achieved by changing color according to the changing light conditions. Many species of amphibians (frogs and toads) and reptiles (lizards and snakes) are able to change their color patterns to camouflage themselves. Some also signal by changing color. The chameleon lizard has the most striking ability to do this. Some chameleon species can change from a rather dull appearance to a full riot of carnival colors in seconds. By this means, they signal their level of aggression or readiness to mate.

Other species take into account the changing conditions of light by performing their visual displays only when the light is favorable. A male bird of paradise may put himself in the limelight by displaying his spectacular plumage in the best stage setting to attract a female. Certain butterflies move into spots of sunlight that have penetrated to the forest floor and display by opening and closing their beautifully patterned wings in the bright spotlights. They also compete with each other for the best spot of sunlight.

Very little light filters through the canopy of leaves and branches in a rain forest to reach ground level—or close to the ground—and at those levels the yellow-to-green wavelengths predominate. A signal might be most easily seen if it is maximally bright. In the green-to-yellow lighting conditions of the lowest levels of the forest, yellow and green would be the brightest colors, but when an animal is signaling, these colors would not be very visible if the animal was sitting in an area with a yellowish or greenish background. The best signal depends not only on its brightness but also on how well it contrasts with the background against which it must be seen. In this part of the rain forest, therefore, red and orange are the best colors for signaling, and they are the colors used in signals by the ground-walking Australian brush turkey. This species, which lives in the rain forests and scrublands of the east coast of Australia, has a brown-to-black plumage with bare, bright-red skin on the head and neck and a neck collar of orange-yellow loosely hanging skin. During courtship and aggressive displays, the turkey enlarges its colored neck collar by inflating sacs in the neck region and then flings about a pendulous part of the colored signaling apparatus as it utters calls designed to attract or repel. This impressive display is clearly visible in the light spectrum illuminating the forest floor.

Less colorful birds and animals that inhabit the rain forest tend to rely on other forms of signaling other than the visual, particularly over long distances. The piercing cries of the rhinoceros hornbill characterize the Southeast Asian rain forest, as do the unmistakable calls of the gibbons. In densely wooded environments, sound is the best means of communication over distance because in comparison with light, it travels with little impediment from trees and other vegetation. In forests, visual signals can be seen only at short distances, where they are not obstructed by trees. The male riflebird exploits both of these modes of signaling simultaneously in his courtship display. The sounds made as each wing is opened carry extremely well over distance and advertise his presence widely. The ritualized visual display communicates in close quarters when a female has approached.

Paragraph 1: The daytime quality of light in forests varies with the density of the vegetation, the angle of the Sun, and the amount of cloud in the sky. Both animals and plants have different appearances in these various lighting conditions. A color or pattern that is relatively indistinct in one kind of light may be quite conspicuous in another.

1. The phrase conspicuous in the passage is closest in meaning to

- Common
- Noticeable
- Different
- Colorful

Paragraph 2: In the varied and constantly changing light environment of the forest, an animal must be able to send visual signals to members of its own species and at the same time avoid being detected by predators. An animal can hide from predators by choosing the light environment in which its pattern is least visible. This may require moving to different parts of the forest at different times of the day or under different weather conditions, or it may be achieved by changing color according to the changing light conditions. Many species of amphibians (frogs and toads) and reptiles (lizards and snakes) are able to change their color patterns to camouflage themselves. Some also signal by changing color. The chameleon lizard has the most striking ability to do this. Some chameleon species can change from a rather dull appearance to a full riot of carnival colors in seconds. By this means, they signal their level of aggression or readiness to mate.

2. According to paragraph 2, what is problematic about an animal's sending visual signals to members of its own species?

- Signs that make an animal visible to its species also make it visible to predators.
- An animal that changes color to avoid predators can confuse members of its species.
- Changing light may require an animal to move beyond the visual range of other members.
- The animal may mistakenly signal aggression when it meant to signal readiness to mate.

3. The word signal in the passage is closest in meaning to

- change
- imitate
- communicate
- hide

4. According to paragraph 2, all of the following are reasons amphibians and reptiles change color EXCEPT

- changing seasons
- to signal others of their species
- to match the light
- to hide from predators

Paragraph 3: Other species take into account the changing conditions of light by performing their visual displays only when the light is favorable. A male bird of paradise may put himself in the limelight by displaying his spectacular plumage in the best stage setting to attract a female. Certain butterflies move into spots of sunlight that have penetrated to the forest floor and display by opening and closing their beautifully patterned wings in the bright spotlights. They also compete with each other for the best spot of sunlight.

5. According to paragraph 3, butterflies move into spots of sunlight in order to

-
- warm their wings in order to open them
 - compete with each other
 - take advantage of favorable light conditions on the forest floor
 - imitate birds of paradise

Paragraph 4: Very little light filters through the canopy of leaves and branches in a rain forest to reach ground level—or close to the ground—and at those levels the yellow-to-green wavelengths predominate. A signal might be most easily seen if it is maximally bright. In the green-to yellow lighting conditions of the lowest levels of the forest, yellow and green would be the brightest colors, but when an animal is signaling, these colors would not be very visible if the animal was sitting in an area with a yellowish or greenish background. The best signal depends not only on its brightness but also on how well it contrasts with the background against which it must be seen. In this part of the rain forest, therefore, red and orange are the best colors for signaling, and they are the colors used in signals by the ground-walking Australian brush turkey. This species, which lives in the rain forests and scrublands of the east coast of Australia, has a brown to-black plumage with bare, bright-red skin on the head and neck and a neck collar of orange-yellow loosely hanging skin. During courtship and aggressive displays, the turkey enlarges its colored neck collar by inflating sacs in the neck region and then flings about a pendulous part of the colored signaling apparatus as it utters calls designed to attract or repel. This impressive display is clearly visible in the light spectrum illuminating the forest floor.

6. According to paragraph 4, what is true about light that reaches ground level?

- It reveals only the yellow and green colors animals use to signal each other.
- It reflects the yellow and green colors to make the floor as bright as sunshine.
- It camouflages animals whose natural colors are yellow and green.
- It consists mostly of yellow-to-green wavelengths.

7. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- When an animal is signaling in an area with green-to yellow lighting condition. It's signal will not be visible if the background is brightly lit.
- In the lowest levels of the forest, an animal's signals are not easily seen unless there is a yellowish or greenish background.
- In the green-to-yellow lighting conditions at the lowest levels of the forest, only signals that are themselves green or yellow will be bright enough to be seen in most areas.
- Although green and yellow would be the brightest colors near the forest floor, these colors would make poor signals whenever the forest background was also in the green-to-yellow range.

8. The word inflating in the passage is closest in meaning to

- Coloring
- Enlarging
- Loosening
- Heating

9. Which of the following can be inferred from paragraph 4 about yellow and green colors compared with red and orange colors at the bottom of the forest?

- Yellow and green are better colors for signaling than red and orange colors.
- Orange and red are brighter colors than yellow and green.

-
- Yellow and green are likely to be more common in the background than red and orange.
 - Orange and red colors do not contrast as well with the forest floor as yellow and green do.

Paragraph 5: Less colorful birds and animals that inhabit the rain forest tend to rely on forms of signaling other than the visual, particularly over long distances. The piercing cries of the rhinoceros hornbill characterize the Southeast Asian rain forest, as do the unmistakable calls of the gibbons. In densely wooded environments, sound is the best means of communication over distance because in comparison with light, it travels with little impediment from trees and other vegetation. In forests, visual signals can be seen only at short distances, where they are not obstructed by trees. The male riflebird exploits both of these modes of signaling simultaneously in his courtship display. The sounds made as each wing is opened carry extremely well over distance and advertise his presence widely. The ritualized visual display communicates in close quarters when a female has approached.

10. What can be inferred from paragraph 5 about the less colorful birds and animals that inhabit the forest?
- These species are less able to see color. and therefore they communicate with one another using nonvisual signals.
 - These species generally live in less densely wooded environments than more colorful birds and animals do.
 - The cries of these species do not carry as well over distances as the cries of more colorful birds and animals.
 - These species depend more on nonvisual signals for communication because they are less visible in their environment.
11. The word impediment in the passage is closest in meaning to
- obstruction
 - effort
 - delay
 - resistance
12. The word exploits in the passage is closest in meaning to
- repeats
 - makes use of
 - increases the intensity of
 - recognizes

Less colorful birds and animals that inhabit the rain forest tend to rely on forms of signaling other than the visual, particularly over long distances. ■ The piercing cries of the rhinoceros hornbill characterize the Southeast Asian rain forest, as do the unmistakable calls of the gibbons. ■ In densely wooded environments, sound is the best means of communication over distance because in comparison with light, it travels with little impediment from trees and other vegetation. ■ In forests, visual signals can be seen only at short distances, where they are not obstructed by trees. ■ The male riflebird exploits both of these modes of signaling simultaneously in his courtship display. The sounds made as each wing is opened carry extremely well over distance and advertise his presence widely. The ritualized visual display communicates in close quarters when a female has approached.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

There is also the long, rather terrifying call of the male orangutan, which carries over considerable distances to advertise his presence.

Where would the sentence best fit?

14. Directions: An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some

sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. This question is worth 2 points.

In the rain forest, an animal must be able to send signals to members of its own species and at the same time avoid being detected by predators.

-
-
-

Answer Choices

1. Animals that have different predators at different times of day
2. To escape notice, an animal may move or change color so change color to avoid being detected. that its color pattern is not visible.
3. To be noticed, an animal may draw attention to the contrast F between its colors and the colors of its environment.
4. Yellow and green are the most common colors found in the r rain forest.
5. Animals must have signals for aggression as well as to indicate readiness to mate.
6. An animal may use sound rather than color to attract attention, because sound signals are not hindered by

参考答案:

1. B
2. A
3. C
4. A
5. C
6. D
7. D
8. B
9. C
10. D
11. A
12. B
13. B
14. To escape...
To be noticed...
An animal may...

雨林中的动物信号

森林中白天的光照质量与植被密度、阳光角度以及云朵数量有关。在不同的光照条件下，动植物都会有相应的不同表现。在某一种光照下，相对较难辨认的颜色或式样在另外一种光照下，也许会变得相当显眼。

森林的光照环境不断改变，动物必须具备这样的能力，使它可以向种群内的同伴发出视觉信号同时避免被捕食者发现。动物可以选择在当时的光照环境下最不易被发觉的形式以躲过捕食者的视线。这就要求动物能在一天不同的时候或者在不同的天气条件下转移到森林的不同方位，或者，它们也可以根据不同的光照来改变自身的颜色。很多两栖动物（青蛙、蟾蜍等）和爬行动物（蜥蜴、蛇等）都可以通过改变外在颜色形态来伪装自己。有些动物还能通过改变颜色来发出信号。变色龙在这方面有着最惊人的能力。有些变色龙物种可以在几秒钟之内就从暗淡的外表变得灿烂夺目。通过这种方式，它们可以传达出敌对程度和交配意愿。

一些其他的物种则只有在光照对它们有利的时候才会利用光照，来进行视觉上的自我展现。雄性极乐鸟会置身于汇聚的光线之下，在最佳的舞台上展现自己缤纷绚烂的羽翼，以吸引雌鸟的注意。而一些蝴蝶则会选择在阳光穿透森林的聚光处飞舞，在明亮的阳光中扇动着美丽的翅膀，它们还会互相争夺最佳的光照位置。

在对于生活在热带雨林中的某些色彩较为灰暗的动物来说，尤其是在跨越长距离时，他们则倾向于发出其他形式的信号而非视觉信号。比如说，东南亚雨林中极有代表性的能发出尖锐叫声的犀鸟和叫声清厉的长臂猿。在树木繁茂的环境中，声音是最好的跨距离传播手段。因为，相较于视觉信号，声音几乎不受树木和其他植被的干扰。在森林中，视觉信号只能在不被树木阻碍的情况下进行短距离传播。雄性极乐鸟在求爱期则同时运用了这两种信号传送方式。它张开翅膀的声响能够极好地传送到远距离之外，铺天盖地地宣传着它的仪表风采。而当雌鸟吸引而来时，它那仪式化的视觉展现就得以近距离地进行交流。因此，在热带雨林的这块区域，红色和橙色是最佳的信号颜色，而这也正是地面行走的澳大利亚灌丛火鸡最善于使用的信号颜色。这个物种生活在澳大利亚东海岸的雨林和灌木丛中，有着黑棕色的羽毛，光秃秃的头部和脖子有着鲜亮的红色，颈圈上是一层橙黄色的松垮的皮肤。在求爱期和发起挑衅时，火鸡会使自己颈囊充气，从而张开艳丽的颈圈，这个色彩绚烂的信号器官松散地垂落着晃动着，随之发出叫声以吸引异性或者驱逐敌人。在雨林底层的光谱环境下，这种视觉展示尤其引人注目。

很少有光能够从热带雨林的树冠层穿透到地面及其附近水平带——而在这些能够到达的水平面，黄绿光波占了主要地位。那么只有色彩极为鲜艳的视觉信号才能最容易被发现。在热带雨林地面黄绿光的条件下，黄色和绿色自然是最明亮的颜色。在动物发出视觉信号的时候，如果它是处于偏黄或偏绿的背景环境中，那么就不很容易被看到了。最佳的信号不仅仅取决于其颜色亮度，还在于它与背景颜色的对比度。

Symbiotic Relationships

A symbiotic relationship is an interaction between two or more species in which one species lives in or on another species. There are three main types of symbiotic relationships: parasitism, commensalism, and mutualism. The first and the third can be key factors in the structure of a biological community; that is, all the populations of organisms living together and potentially interacting in a particular area.

Parasitism is a kind of predator-prey relationship in which one organism, the parasite, derives its food at the expense of its symbiotic associate, the host. Parasites are usually smaller than their hosts. An example of a parasite is a tapeworm that lives inside the intestines of a larger animal and absorbs nutrients from its host. Natural selection favors the parasites that are best able to find and feed on hosts. At the same time, defensive abilities of hosts are also selected for. As an example, plants make chemicals toxic to fungal and bacterial parasites, along with ones toxic to predatory animals (sometimes they are the same chemicals). In vertebrates, the immune system provides a multiple defense against internal parasites.

At times, it is actually possible to watch the effects of natural selection in host-parasite relationships. For example, Australia during the 1940 s was overrun by hundreds of millions of European rabbits. The rabbits destroyed huge expanses of Australia and threatened the sheep and cattle industries. In 1950, myxoma virus, a parasite that affects rabbits, was deliberately introduced into Australia to control the rabbit population. Spread rapidly by mosquitoes, the virus devastated the rabbit population. The virus was less deadly to the offspring of surviving rabbits, however, and it caused less and less harm over the years. Apparently, genotypes (the genetic make-up of an organism) in the rabbit population were selected that were better able to resist the parasite. Meanwhile, the deadliest strains of the virus perished with their hosts as natural selection favored strains that could infect hosts but not kill them. Thus, natural selection stabilized this host-parasite relationship.

In contrast to parasitism, in commensalism, one partner benefits without significantly affecting the other. Few cases of absolute commensalism probably exist, because it is unlikely that one of the partners will be completely unaffected. Commensal associations sometimes involve one species' obtaining food that is inadvertently exposed by another. For instance, several kinds of birds feed on insects flushed out of the grass by grazing cattle. It is difficult to imagine how this could affect the cattle, but the relationship may help or hinder them in some way not yet recognized.

The third type of symbiosis, mutualism, benefits both partners in the relationship. Legume plants and their nitrogen-fixing bacteria, and the interactions between flowering plants and their pollinators, are examples of mutualistic association. In the first case, the plants provide the bacteria with carbohydrates and other organic compounds, and the bacteria have enzymes that act as catalysts that eventually add nitrogen to the soil, enriching it. In the second case, pollinators (insects, birds) obtain food from the flowering plant, and the plant has its pollen distributed and seeds dispersed much more efficiently than they would be if they were carried by the wind only. Another example of mutualism would be the bull's horn acacia tree, which grows in Central and South America. The tree provides a place to live for ants of the genus *Pseudomyrmex*. The ants live in large, hollow thorns and eat sugar secreted by the tree. The ants also eat yellow structures at the tip of leaflets: these are protein rich and seem to have no function for the tree except to attract ants. The ants benefit the host tree by attacking virtually anything that touches it. They sting other insects and large herbivores (animals that eat only plants) and even clip surrounding vegetation that grows near the tree. When the ants are removed, the trees usually die, probably because herbivores damage them so much that they are unable to compete with surrounding vegetation for light and growing space.

The complex interplay of species in symbiotic relationships highlights an important point about communities: Their structure depends on a web of diverse connections among organisms.

Paragraph 1: A symbiotic relationship is an interaction between two or more species in which one species lives in or on another species. There are three main types of symbiotic relationships: parasitism, commensalism, and mutualism. The first and the third can be key factors in the structure of a biological community; that is, all the populations of organisms living together and potentially interacting in a particular area.

1. Which of the following statements about commensalism can be inferred from paragraph 1?

- ☐ It excludes interactions between more than two species.
- ☐ It makes it less likely for species within a community to survive.
- ☐ Its significance to the organization of biological communities is small.
- ☐ Its role in the structure of biological populations is a disruptive one.

Paragraph 2: Parasitism is a kind of predator-prey relationship in which one organism, the parasite, derives its food at the expense of its symbiotic associate, the host. Parasites are usually smaller than their hosts. An example of a parasite is a tapeworm that lives inside the intestines of a larger animal and absorbs nutrients from its host. Natural selection favors the parasites that are best able to find and feed on hosts. At the same time, defensive abilities of hosts are also selected for. As an example, plants make chemicals toxic to fungal and bacterial parasites, along with ones toxic to predatory animals (sometimes they are the same chemicals). In vertebrates, the immune system provides a multiple defense against internal parasites.

2. The word derives in the passage is closest in meaning to

- ☐ Digests
- ☐ Obtains
- ☐ Controls
- ☐ Discovers

3. According to paragraph 2, which of the following is true of the action of natural selection on hosts and parasites?

- ☐ Hosts benefit more from natural selection than parasites do.
- ☐ Both aggression in predators and defensive capacities in hosts are favored for species survival.
- ☐ The ability to make toxic chemicals enables a parasite to find and isolate its host.
- ☐ Larger size equips a parasite to prey on smaller host organisms.

Paragraph 3: At times, it is actually possible to watch the effects of natural selection in host-parasite relationships. For example, Australia during the 1940 s was overrun by hundreds of millions of European rabbits. The rabbits destroyed huge expanses of Australia and threatened the sheep and cattle industries. In 1950, myxoma virus, a parasite that affects rabbits, was deliberately introduced into Australia to control the rabbit population. Spread rapidly by mosquitoes, the virus devastated the rabbit population. The virus was less deadly to the offspring of surviving rabbits, however, and it caused less and less harm over the years. Apparently, genotypes (the genetic make-up of an organism) in the rabbit population were selected that were better able to resist the parasite. Meanwhile, the deadliest strains of the virus perished with their hosts as natural selection favored strains that could infect hosts but not kill them. Thus, natural selection stabilized this host-parasite relationship.

4. The word devastated in the passage is closest in meaning to

- ☐ Influenced
- ☐ Infected

-
- strengthened
 - destroyed

5. Which of the following can be concluded from the discussion in paragraph 3 about the Australian rabbit population?

- Human intervention may alter the host, the parasite, and the relationship between them.
- The risks of introducing outside organisms into a biological community are not worth the benefits.
- Humans should not interfere in host-parasite relationships.
- Organisms that survive a parasitic attack do so in spite of the natural selection process.

6. According to paragraph 3, all of the following characterize the way natural selection stabilized the Australian rabbit population EXCEPT:

- The most toxic viruses died with their hosts.
- The surviving rabbits were increasingly immune to the virus.
- The decline of the mosquito population caused the spread of the virus to decline.
- Rabbits with specific genetic make-ups were favored.

Paragraph 4: In contrast to parasitism, in commensalism, one partner benefits without significantly affecting the other. Few cases of absolute commensalism probably exist, because it is unlikely that one of the partners will be completely unaffected. Commensal associations sometimes involve one species' obtaining food that is inadvertently exposed by another. For instance, several kinds of birds feed on insects flushed out of the grass by grazing cattle. It is difficult to imagine how this could affect the cattle, but the relationship may help or hinder them in some way not yet recognized.

7. The word inadvertently in the passage is closest in meaning to

- Indefensibly
- Substantially
- Unintentionally
- Partially

Paragraph 5: The third type of symbiosis, mutualism, benefits both partners in the relationship. Legume plants and their nitrogen-fixing bacteria, and the interactions between flowering plants and their pollinators, are examples of mutualistic association. In the first case, the plants provide the bacteria with carbohydrates and other organic compounds, and the bacteria have enzymes that act as catalysts that eventually add nitrogen to the soil, enriching it. In the second case, pollinators (insects, birds) obtain food from the flowering plant, and the plant has its pollen distributed and seeds dispersed much more efficiently than they would be if they were carried by the wind only. Another example of mutualism would be the bull's horn acacia tree, which grows in Central and South America. The tree provides a place to live for ants of the genus *Pseudomyrmex*. The ants live in large, hollow thorns and eat sugar secreted by the tree. The ants also eat yellow structures at the tip of leaflets: these are protein rich and seem to have no function for the tree except to attract ants. The ants benefit the host tree by attacking virtually anything that touches it. They sting other insects and large herbivores (animals that eat only plants) and even clip surrounding vegetation that grows near the tree. When the ants are removed, the trees usually die, probably because herbivores damage them so much that they are unable to compete with surrounding vegetation for light and growing space.

8. According to paragraph 5, the relationship between legumes and bacteria benefits the soil by

- adding enriching carbohydrates

-
- speeding the decay of organic matter
 - destroying enzymes that pollute it
 - contributing nitrogen to it

9. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- The relationship between flowering plants and pollinators provides pollinators with food and flowers with efficient reproduction.
- In some cases birds obtain food from the seeds that are dispersed in the wind.
- The wind not only helps the flowers distribute their seeds but enables birds to find more food.
- Animals and insects are more effective in distributing pollen and seeds than the wind.

10. According to paragraph 5, which of the following is NOT true of the relationship between the bull's horn acacia tree and the *Pseudomyrmex* ants?

- Ants defend the host trees against the predatory actions of insects and animals.
- The acacia trees are a valuable source of nutrition for the ants.
- The ants enable the acacia tree to produce its own chemical defenses.
- The ants protect the acacia from having to compete with surrounding vegetation.

Paragraph 6: The complex interplay of species in symbiotic relationships **highlights** an important point about communities: Their structure depends on a web of diverse connections among organisms.

11. The word **highlights** in the passage is closest in meaning to

- Defines
- Emphasizes
- Reflects
- Suggests

12. What is the main purpose of this passage?

- To explain the concept of symbiosis by expanded descriptions of its principal types
- To make a comparison between human relationships and symbiotic interactions in the natural world
- To demonstrate the unforeseen benefits of natural processes that at first seem wholly destructive
- To argue that parasitism is a problem that can be solved by scientific intervention

At times, it is actually possible to watch the effects of natural selection in host-parasite relationships. For example, Australia during the 1940 s was overrun by hundreds of millions of European rabbits. ■ The rabbits destroyed huge expanses of Australia and threatened the sheep and cattle industries. ■ In 1950, myxoma virus, a parasite that affects rabbits, was deliberately introduced into Australia to control the rabbit population. ■ Spread rapidly by mosquitoes, the virus devastated the rabbit population. ■ The virus was less deadly to the offspring of surviving rabbits, however, and it caused less and less harm over the years. Apparently, genotypes (the genetic make-up of an organism) in the rabbit population were selected that were better able to resist the parasite. Meanwhile, the deadliest strains of the virus perished with their hosts as natural selection favored strains that could infect hosts but not kill them. Thus, natural selection stabilized this host-parasite relationship.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

This massive population began a century earlier as a mere twelve pairs of imported rabbits that reproduced quickly and developed into a major problem.

Where would the sentence best fit?

14. Directions: An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. This question is worth 2 points.

Symbiotic relationships involve the interaction of two or more organisms acting as partners.

-
-
-

Answer Choices

1. Parasitic relationships involve the interplay of aggression by the parasite and resistance and adaptation by the host.
2. Mutualism ordinarily involves an interaction between two members of the same species.
3. Mutualism is unique among symbiotic relationships in that it r benefits both partners involved in the relationship.
4. Parasitic damage to Australian rabbits was never reversed because the rabbits were unable to adapt to the parasites' attacks.
5. The rarity of commensal relationships stems from the difficulty of finding relationships that benefit one species without affecting the other.
6. The structure of biological communities depends on the types of relationships that exist among the species within.

参考答案:

1. C
2. B
3. B
4. D
5. A
6. C
7. C
8. D
9. A
10. C
11. B
12. A
13. A
14. Parasitic relationships...
The rarity of...
Mutualism is unique...

参考译文：

共生关系

共生是物种之间的一种交互作用，其中一个物种必须依赖另外一个物种以生存。共生关系共有三种类型：寄生、共栖和互惠共生。其中第一种和第三种是一个生物群落构成的关键要素。所谓生物群落，指的是在某个特定区域内，所有生物体共同生存并且相互影响。

寄生现象是物种间一种捕食式的关系，其中，寄生物通过削弱其寄主为代价而获得自身所需食物。寄生物的形体往往小于寄主。一种典型的寄生物是绦虫，它生存在较大型动物的肠道中，并吸收寄主体内的营养。同时，寄主的防御能力也对此加以选择。比如说，一些植物可以产生某些化学毒剂，以抵抗真菌和细菌这样的寄生物以及它们所携带的对植物产生伤害的毒剂（有时候这些是同一种化学物）。而对于脊椎动物来说，其身体的免疫系统可以对体内的寄生物进行多层防御。

有时候，寄生关系的自然选择效应也可能在现实中被观察到。比如说，在二十世纪四十年代时，澳大利亚曾经爆发了极为严重的兔灾，数亿只欧洲兔肆虐了广袤的土地，并给牛羊业带来了极大的威胁。**1950** 年，为了控制兔灾，澳大利亚特意引进了一种名为粘液瘤病毒的寄生虫。通过蚊子，这种寄生虫在兔群中迅速传播开来，使兔子数量急剧减少。然而，这种寄生虫对于生存下来的兔群的后代就没有那么致命了，而且这种伤害作用驻代减少。显然，该兔群的遗传性状（生物体的基因结构）经过了自然选择之后，已经具备了更好地抵抗粘液瘤病毒的能力。与此同时，由于该寄生物更倾向于感染寄主但不致其死，在自然选择之下，这种病毒最致命的品系也逐渐地衰败了。这样自然选择便使得寄主-寄生虫的关系趋于稳定。

与寄生关系相反，在共生关系之中，一方受益，也不会给另一方带来严重影响。然而在现实中，纯粹的共生关系几乎不存在，因为很难有一方会完全不受影响。共生关系有时候表现为这样一种方式，一个物种寻觅食物会经由另外一个物种不经意地暴露出来。比如说，有一些以昆虫为食的鸟类会被放牧中的牛群赶出草地。很难说这个对牛群会带来什么影响，但这样的关系也许正以一种我们尚未认知到的方式在帮助或损害着它们。

共生关系中物种间错综复杂的相互影响揭示了群落中很重要的一点，即结构的建立依赖于生物之间千变万化的联系网络。

第三种关系，互惠共生，是指共生双方能够互利互惠，其中典型的例子有豆科植物和固氮细菌，以及开花植物和授粉生物。在前者关系中，植物可以为细菌提供其生存所需的碳水化合物以及其他一些化合物，而这些细菌则能产生一种酶，通过催化作用增加土壤中的氮元素从而滋养植物。在后者的关系中，授粉生物（昆虫、鸟类等）从开花植物中获取食物，而植物则可以通过它们来传递花粉和种子，这比仅仅依靠风来传递要高效得多。还有一个互惠共生的例子是生长在美国中南部的牛角金合欢树。这种树为伪蚁属的一种蚂蚁提供了栖居地。这些蚂蚁住在宽敞下凹的荆棘丛中，汲取金合欢树分泌出来的糖分。同时，它们还吃树叶末端的黄色组织——这个部分富含蛋白质，但是除了吸引蚂蚁，似乎对树本身没有任何功能。而这些蚂蚁们则可以帮助它们的寄主攻击外界几乎所有的威胁。它们会叮咬昆虫和食草动物（只以植物为食的动物），甚至可以削减生长在树周围的其他植物。一旦蚂蚁被清除掉，这种树就难以存活，很可能是因为它们被食草动物侵害而无力与周围的其他植物争夺阳光和生长空间。

Industrialization in the Netherlands and Scandinavia

While some European countries, such as England and Germany, began to industrialize in the eighteenth century, the Netherlands and the Scandinavian countries of Denmark, Norway, and Sweden developed later. All four of these countries lagged considerably behind in the early nineteenth century. However, they industrialized rapidly in the second half of the century, especially in the last two or three decades. In view of their later start and their lack of coal—undoubtedly the main reason they were not among the early industrializers—it is important to understand the sources of their success.

All had small populations. At the beginning of the nineteenth century, Denmark and Norway had fewer than 1 million people, while Sweden and the Netherlands had fewer than 2.5 million inhabitants. All exhibited moderate growth rates in the course of the century (Denmark the highest and Sweden the lowest), but all more than doubled in population by 1900. Density varied greatly. The Netherlands had one of the highest population densities in Europe, whereas Norway and Sweden had the lowest. Denmark was in between but closer to the Netherlands.

Considering human capital as a characteristic of the population, however, all four countries were advantaged by the large percentages of their populations who could read and write. In both 1850 and 1914, the Scandinavian countries had the highest literacy rates in Europe, or in the world, and the Netherlands was well above the European average. This fact was of enormous value in helping the national economies find their niches in the evolving currents of the international economy.

Location was an important factor for all four countries. All had immediate access to the sea, and this had important implications for a significant international resource, fish, as well as for cheap transport, merchant marines, and the shipbuilding industry. Each took advantage of these opportunities in its own way. The people of the Netherlands, with a long tradition of fisheries and mercantile shipping, had difficulty in developing good harbors suitable for steamships: eventually they did so at Rotterdam and Amsterdam, with exceptional results for transit trade with Germany and central Europe and for the processing of overseas foodstuffs and raw materials (sugar, tobacco, chocolate, grain, and eventually oil). Denmark also had an admirable commercial history, particularly with respect to traffic through the Sound (the strait separating Denmark and Sweden). In 1857, in return for a payment of 63 million kroner from other commercial nations, Denmark abolished the Sound toll dues the fees it had collected since 1497 for the use of the Sound. This, along with other policy shifts toward free trade, resulted in a significant increase in traffic through the Sound and in the port of Copenhagen.

The political institutions of the four countries posed no significant barriers to industrialization or economic growth. The nineteenth century passed relatively peacefully for these countries, with progressive democratization taking place in all of them. They were reasonably well governed, without notable corruption or grandiose state projects, although in all of them the government gave some aid to railways, and in Sweden the state built the main lines. As small countries dependent on foreign markets, they followed a liberal trade policy in the main, though a protectionist movement developed in Sweden. In Denmark and Sweden agricultural reforms took place gradually from the late eighteenth century through the first half of the nineteenth, resulting in a new class of peasant landowners with a definite market orientation.

The key factor in the success of these countries (along with high literacy, which contributed to it) was their ability

to adapt to the international division of labor determined by the early industrializers and to stake out areas of specialization in international markets for which they were especially well suited. This meant a great dependence on international commerce, which had notorious fluctuations; but it also meant high returns to those factors of production that were fortunate enough to be well placed in times of prosperity. In Sweden exports accounted for 18 percent of the national income in 1870, and in 1913, 22 percent of a much larger national income. In the early twentieth century, Denmark exported 63 percent of its agricultural production: butter, pork products, and eggs. It exported 80 percent of its butter, almost all to Great Britain, where it accounted for 40 percent of British butter imports.

Paragraph 1: While some European countries, such as England and Germany, began to industrialize in the eighteenth century, the Netherlands and the Scandinavian countries of Denmark, Norway, and Sweden developed later. All four of these countries lagged considerably behind in the early nineteenth century. However, they industrialized rapidly in the second half of the century, especially in the last two or three decades. In view of their later start and their lack of coal—undoubtedly the main reason they were not among the early industrializers—it is important to understand the sources of their success.

1. Paragraph 1 supports which of the following ideas about England and Germany?

- ☐ They were completely industrialized by the start of the nineteenth century.
- ☐ They possessed plentiful supplies of coal.
- ☐ They were overtaken economically by the Netherlands and Scandinavia during the early nineteenth century.
- ☐ They succeeded for the same reasons that the Netherlands and Scandinavia did.

Paragraph 2: All had small populations. At the beginning of the nineteenth century, Denmark and Norway had fewer than 1 million people, while Sweden and the Netherlands had fewer than 2.5 million inhabitants. All exhibited moderate growth rates in the course of the century (Denmark the highest and Sweden the lowest), but all more than doubled in population by 1900. Density varied greatly. The Netherlands had one of the highest population densities in Europe, whereas Norway and Sweden had the lowest. Denmark was in between but closer to the Netherlands.

Paragraph 3: Considering human capital as a characteristic of the population, however, all four countries were advantaged by the large percentages of their populations who could read and write. In both 1850 and 1914, the Scandinavian countries had the highest literacy rates in Europe, or in the world, and the Netherlands was well above the European average. This fact was of enormous value in helping the national economies find their niches in the evolving currents of the international economy.

2. Paragraph 2 suggests which of the following about the importance of population density in the industrialization of the Netherlands and Scandinavia?

- ☐ It was a more important factor than population size.
- ☐ It was more influential than the rate of population growth.
- ☐ It was more important in the early stages than it was later.
- ☐ It was not a significant factor.

3. According to paragraphs 2 and 3, which of the following contributed significantly to the successful economic development of the Netherlands and of Scandinavia?

- ☐ The relatively small size of their populations
- ☐ The rapid rate at which their populations were growing
- ☐ The large amount of capital they had available for investment

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- The high proportion of their citizens who were educated

Paragraph 4: Location was an important factor for all four countries. All had immediate access to the sea, and this had important implications for a significant international resource, fish, as well as for cheap transport, merchant marines, and the shipbuilding industry. Each took advantage of these opportunities in its own way. The people of the Netherlands, with a long tradition of fisheries and mercantile shipping, had difficulty in developing good harbors suitable for steamships: eventually they did so at Rotterdam and Amsterdam, with **exceptional** results for transit trade with Germany and central Europe and for the processing of overseas foodstuffs and raw materials (sugar, tobacco, chocolate, grain, and eventually oil). Denmark also had an admirable commercial history, particularly with respect to traffic through the Sound (the strait separating Denmark and Sweden). In 1857, in return for a payment of 63 million kroner from other commercial nations, Denmark **abolished** the Sound toll dues the fees it had collected since 1497 for the use of the Sound. This, along with other policy shifts toward free trade, resulted in a significant increase in traffic through the Sound and in the port of Copenhagen.

4. According to paragraph 4, because of their location, the Netherlands and the Scandinavian countries had all of the following advantages when they began to industrialize EXCEPT
 - low-cost transportation of goods
 - access to fish
 - shipbuilding industries
 - military control of the sea
5. The word “**exceptional**” in the passage is closest in meaning to
 - extraordinary
 - surprising
 - immediate
 - predictable
6. The word “**abolished**” in the passage is closest in meaning to
 - ended
 - raised
 - returned
 - lowered

Paragraph 5: The political institutions of the four countries posed no significant barriers to industrialization or economic growth. The nineteenth century passed relatively peacefully for these countries, with **progressive** democratization taking place in all of them. They were reasonably well governed, without notable corruption or grandiose state projects, although in all of them the government gave some aid to railways, and in Sweden the state built the main lines. As small countries dependent on foreign markets, they followed a liberal trade policy in the main, though a **protectionist movement developed in Sweden**. In Denmark and Sweden agricultural reforms took place gradually from the late eighteenth century through the first half of the nineteenth, resulting in a new class of peasant landowners with a definite market orientation.

7. According to paragraph 5, each of the following contributed positively to the industrialization of the Netherlands and Scandinavia EXCEPT
 - generally liberal trade policies
 - huge projects undertaken by the state
 - relatively uncorrupt governments
 - relatively little social or political disruption

-
8. The word “progressive” in the passage is closest in meaning to
- ☐ rapid
 - ☐ partial
 - ☐ increasing
 - ☐ individual
9. The author includes the information that “a protectionist movement developed in Sweden” in order to
- ☐ support the claim that the political institutions of the four countries posed no significant barriers to industrialization or economic growth
 - ☐ identify an exception to the general trend favoring liberal trade policy
 - ☐ explain why Sweden industrialized less quickly than the other Scandinavian countries and Netherlands
 - ☐ provide evidence that agricultural reforms take place more quickly in countries that have a liberal trade policy than in those that do not

Paragraph 6: The key factor in the success of these countries (along with high literacy, which contributed to it) was their ability to adapt to the international division of labor determined by the early industrializers and to stake out areas of specialization in international markets for which they were especially well suited. This meant a great dependence on international commerce, which had notorious fluctuations; but it also meant high returns to those factors of production that were fortunate enough to be well placed in times of prosperity. In Sweden exports accounted for 18 percent of the national income in 1870, and in 1913, 22 percent of a much larger national income. In the early twentieth century, Denmark exported 63 percent of its agricultural production: butter, pork products, and eggs. It exported 80 percent of its butter, almost all to Great Britain, where it accounted for 40 percent of British butter imports.

10. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
- ☐ The early industrializers controlled most of the international economy, leaving these countries to stake out new areas of specialization along the margins.
 - ☐ Aided by their high literacy rates these countries were able to claim key areas of specialization within established international markets.
 - ☐ High literacy rates enabled these countries to take over international markets and adapt the international division of labor to suit their strengths.
 - ☐ The international division of labor established by the early industrializers was suited to these countries, a key factor in their success.
11. According to paragraph 6, a major problem with depending heavily on international markets was that they
- ☐ lacked stability
 - ☐ were not well suited to agricultural products
 - ☐ were largely controlled by the early industrializers
 - ☐ led to slower growth of local industries
12. According to paragraph 6, what advantage could a country gain from being heavily involved in international commerce?
- ☐ A steadily rising national income
 - ☐ Greater control over market fluctuations
 - ☐ High returns when things went well
 - ☐ A reduced need for imports

While some European countries, such as England and Germany, began to industrialize in the eighteenth century, the Netherlands and the Scandinavian countries of Denmark, Norway, and Sweden developed later. ■ All four of these countries lagged considerably behind in the early nineteenth century. ■ However, they industrialized rapidly in the second half of the century, especially in the last two or three decades. ■ In view of their later start and their lack of coal—undoubtedly the main reason they were not among the early industrializers—it is important to understand the sources of their success. ■

13. Look at the four squares [■] that indicate where the following sentence be added to passage.

During this period, Sweden had the highest rate of growth of output per capita of any country in Europe, and Denmark was second.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THERR answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Although the Netherlands and Scandinavia began to industrialize relatively late, they did so very successfully

- Although these countries all started with small, uneducated populations, industrialization led to significant population growth and higher literacy rates.
- Thanks to their ready access to the sea, these countries enjoyed advantages in mercantile shipping, fishing, and shipbuilding.
- Because they all started with good harbors for steamships, these countries started with an important advantage in the competition for transit trade.
- These countries were helped by the fact that their governments were relatively stable and honest and generally supported liberal trade policies.
- These countries were successful primarily because their high literacy rates helped them fill specialized market niches.
- Because they were never fully dependent on international commerce, these countries were able to survive notorious fluctuations in international markets.

参考答案:

1. B

2. D

3. D

4. D

5. A

6. A

7. B

8. C

9. B

10. B

11. A

12. C

13. C

14. Thanks to their ...

These countries were helped by ...

These countries were successful ...

参考译文：

荷兰和斯堪的纳维亚半岛的工业化进程

相对于欧洲的一些国家，如英格兰和德国，在 18 世纪就开始实现工业化的时候，荷兰以及丹麦、挪威、瑞典这些斯堪的纳维亚半岛的国家的工业化是后来才发展起来的。这四个国家在 19 世纪的时候工业化水平依旧非常滞后。但是在 19 世纪下叶，尤其是在最后的二、三十年间里，他们迅速地实现了工业化。鉴于这几个国家的工业化起步较晚并且缺少煤炭资源，毫无疑问，这些都是导致他们不在早期工业化国家行列中的主要原因。因此，找出他们成功实现工业化的原因是非常重要的。

这些国家的人口都很少。在 19 世纪初，丹麦和挪威的人口总数不到 100 万；而瑞典和荷兰的居民数量也低于 250 万。在 19 世纪，这四个国家均展现出了缓和的人口增长率（丹麦最高，瑞典最低）。但是到了 1900 年，这些国家的人口数量翻了两倍有余，人口密度剧烈变化。荷兰是欧洲人口数量最多的国家之一，挪威和瑞典最少。丹麦人口数量处于这四国的中游水平，但是趋近于荷兰。

考虑到人力资本是人口的重要特征，这四个国家的优势在于受教育人口的比例非常高。在 1850 年和 1914 年，斯堪的纳维亚半岛各国的教育普及率是全欧洲或者全世界最高的，而荷兰远高于欧洲平均水平。如此高的比例对于帮助国内经济在世界经济的改革浪潮中找到自己的位置有着巨大价值。

地理位置对于这四个国家来说，同样是一个非常重要的因素。这四个国家都直接濒临海洋，而且这样的地理位置对于国际资源，渔业以及价格低廉的运输、海上商运以及船舶工业有重要的影响。这四个国家因势利导，很好地利用了各自的优势。有着悠久渔业和航运业历史的荷兰人在建造可以停泊蒸汽轮船的港口是遇到了巨大困难。最终，鉴于荷兰要参与德国跟中欧各国的过境贸易以及海外食品及原材料（从糖类、烟草、巧克力、粮食到原油）的加工工程，他们最终成功地在鹿特丹和阿姆斯特丹完成了港口的建设工程。丹麦同样有着辉煌的贸易史，特别是在松德海峡（隔开丹麦和瑞典的海峡）的海上交通。在 1857 年，一些贸易国家向丹麦支付了 6300 万瑞典克朗，作为交换，丹麦废止了自 1497 年以来在松德海峡征收的通行费。这一举措与其他自由贸易政策相辅相成，使得途径卡特加特海峡到达哥本哈根港口的贸易额大增。

这四个国家的政府没有对工业化和经济的增长设置过多的障碍。而这四国不断发展的民主进程使他们相对平稳地度过了 19 世纪。这些国家被治理的井井有条，尽管政府在铁路上给予了一定的扶持，比如瑞典政府修建了一些主要的铁路干线，不过在此期间，没有出现重大的腐败和不切实际的国家工程。虽然贸易保护主义在瑞典比较明显，但是就如同小国家依赖外国市场一般，这四个国家总体上还是以遵循自由贸易原则为主。在丹麦和瑞典，农业改革始于十八世纪末期，并且一直持续到十九世纪中期，这一改革导致了有着明确市场定位的农民地主阶级的出现。

这四个国家之所以取得工业化成功，关键因素在于它们能够适应由早期工业化国家所制订的国际劳动力分配，以及利用自身优势坚持对国际市场的各专业领域进行跟踪监控。这意味着对国际贸易市场存在着巨大的依赖，并伴有臭名昭著的大涨大落。但它也意味着对那些有幸被放置在繁荣时期生产要素有着高额的回报。1870 年时，当时瑞典的出口额占据国民收入的 18%；在 1912 年更是达到国民收入的 22%。在二十世纪初期，丹麦一度出口了 63% 的农产品，范围涵盖黄油、猪肉制品和蛋类等。其中，丹麦出口了将近 80% 的黄油，这些几乎都销往了英国，而这一数额也达到了英国黄油进口总量的 40%。

The mystery of yawning

According to conventional theory, yawning takes place when people are bored or sleepy and serves the function of increasing alertness by reversing, through deeper breathing, the drop in blood oxygen levels that are caused by the shallow breathing that accompanies lack of sleep or boredom. Unfortunately, the few scientific investigations of yawning have failed to find any connection between how often someone yawns and how much sleep they have had or how tired they are. About the closest any research has come to supporting the tiredness theory is to confirm that adults yawn more often on weekdays than at weekends, and that school children yawn more frequently in their first year at primary school than they do in kindergarten.

Another flaw of the tiredness theory is that yawning does not raise alertness or physiological activity, as the theory would predict. When researchers measured the heart rate, muscle tension and skin conductance of people before, during and after yawning, they did detect some changes in skin conductance following yawning, indicating a slight increase in physiological activity. However, similar changes occurred when the subjects were asked simply to open their mouths or to breathe deeply. Yawning did nothing special to their state of physiological activity. Experiments have also cast serious doubt on the belief that yawning is triggered by a drop in blood oxygen or a rise in blood carbon dioxide. Volunteers were told to think about yawning while they breathed either normal air, pure oxygen, or an air mixture with an above-normal level of carbon dioxide. If the theory was correct, breathing air with extra carbon dioxide should have triggered yawning, while breathing pure oxygen should have suppressed yawning. In fact, neither condition made any difference to the frequency of yawning, which remained constant at about 24 yawns per hour. Another experiment demonstrated that physical exercise, which was sufficiently vigorous to double the rate of breathing, had no effect on the frequency of yawning. Again the implication is that yawning has little or nothing to do with oxygen.

A completely different theory holds that yawning assists in the physical development of the lungs early in life, but has no remaining biological function in adults. It has been suggested that yawning and hiccupping might serve to clear out the fetuses airways. The lungs of a fetus secrete a liquid that mixes with its mother's amniotic fluid. Babies with congenital blockages that prevent this fluid from escaping from their lungs are sometimes born with deformed lungs. It might be that yawning helps to clear out the lungs by periodically lowering the pressure in them. According to this theory, yawning in adults is just a developmental fossil with no biological function. But, while accepting that not everything in life can be explained by Darwinian evolution, there are sound reasons for being skeptical of theories like this one, which avoid the issue of what yawning does for adults. Yawning is distracting, consumes energy and takes time. It is almost certainly doing something significant in adults as well as in fetuses. What could it be?

The empirical evidence, such as it is, suggests an altogether different function for yawning—namely, that yawning prepares us for a change in activity level. Support for this theory came from a study of yawning behavior in everyday life. Volunteers wore wrist-mounted devices that automatically recorded their physical activity for up to two weeks: the volunteers also recorded their yawns by pressing a button on the device each time they yawned. The data showed that yawning tended to occur about 15 minutes before a period of increased behavioral activity. Yawning bore no relationship to sleep patterns, however. This accords with anecdotal evidence that people often yawn in situations where they are neither tired nor bored, but are preparing for impending mental and physical activity. Such yawning is often referred to as "incongruous" because it seems out of place, at least on the tiredness view: soldiers yawning before combat, musicians yawning before performing, and athletes yawning before competing. Their yawning seems to have nothing to do with sleepiness or boredom—quite the reverse—but it does precede a change in activity level.

Paragraph 1: According to conventional theory, yawning takes place when people are bored or sleepy and serves the function of increasing alertness by reversing, through deeper breathing, the drop in blood oxygen levels that are caused by the shallow breathing that accompanies lack of sleep or boredom. Unfortunately, the few scientific investigations of yawning have failed to find any connection between how often someone yawns and how much sleep they have had or how tired they are. About the closest any research has come to supporting the tiredness theory is to confirm that adults yawn more often on weekdays than at weekends, and that school children yawn more frequently in their first year at primary school than they do in kindergarten.

1. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
 - ☐ It is the conventional theory that when people are bored or sleepy, they often experience a drop in blood oxygen levels due to their shallow breathing.
 - ☐ The conventional theory is that people yawn when bored or sleepy because yawning raises blood oxygen levels, which in turn raises alertness.
 - ☐ According to conventional theory, yawning is more likely to occur when people are bored or sleepy than when they are alert and breathing deeply.
 - ☐ Yawning according to the conventional theory, is caused by boredom or lack of sleep and can be avoided through deeper breathing.
2. In paragraph 1, what point does the author make about the evidence for the tiredness theory of yawning?
 - ☐ There is no scientific evidence linking yawning with tiredness.
 - ☐ The evidence is wide-ranging because it covers multiple age-groups.
 - ☐ The evidence is reliable because it was collected over a long period of time.
 - ☐ The evidence is questionable because the yawning patterns of children and adults should be different.

Paragraph 2: Another **flaw** of the tiredness theory is that yawning does not raise alertness or physiological activity, as the theory would predict. When researchers measured the heart rate, muscle tension and skin conductance of people before, during and after yawning, they did detect some changes in skin conductance following yawning, indicating a slight increase in physiological activity. However, similar changes occurred when the subjects were asked simply to open their mouths or to breathe deeply. Yawning did nothing special to their state of physiological activity. Experiments have also cast serious doubt on the belief that yawning is triggered by a drop in blood oxygen or a rise in blood carbon dioxide. Volunteers were told to think about yawning while they breathed either normal air, pure oxygen, or an air mixture with an above-normal level of carbon dioxide. If the theory was correct, breathing air with extra carbon dioxide should have **triggered** yawning, while breathing pure oxygen should have suppressed yawning. In fact, neither condition made any difference to the frequency of yawning, which remained constant at about 24 yawns per hour. Another experiment demonstrated that physical exercise, which was sufficiently vigorous to double the rate of breathing, had no effect on the frequency of yawning. Again the implication is that yawning has little or nothing to do with oxygen.

3. The word "**flaw**" in the passage is closest in meaning to
 - ☐ fault
 - ☐ aspect
 - ☐ confusion
 - ☐ mystery

-
4. In the paragraph 2, why does the author note that there were physiological changes when subjects opened their mouths or breathed deeply?
- ☐ To present an argument in support of the tiredness theory
 - ☐ To cast doubt on the reliability of the tests that measured heart rate, muscle tension and skin conductance
 - ☐ To argue against the hypothesis that yawning provides a special way to improve alertness or raise physiological activity
 - ☐ To support the idea that opening the mouth or breathing deeply can affect blood oxygen levels
5. The word “triggered” in the passage is closest in meaning to
- ☐ removed
 - ☐ followed
 - ☐ increased
 - ☐ caused
6. Paragraph 2 answers all of the following questions about yawning EXCEPT
- ☐ Does yawning increase alertness or physiological activity?
 - ☐ Does thinking about yawning increase yawning over not thinking about yawning?
 - ☐ Does the amount of carbon dioxide and oxygen in the air affect the rate at which people yawn?
 - ☐ Does the rate of breathing affect the rate at which people yawn?

Paragraph3: A completely different theory holds that yawning assists in the physical development of the lungs early in life, but has no remaining biological function in adults. It has been suggested that yawning and hiccupping might serve to clear out the fetuses airways. The lungs of a fetus secrete a liquid that mixes with its mother's amniotic fluid. Babies with congenital blockages that prevent this fluid from escaping from their lungs are sometimes born with deformed lungs. It might be that yawning helps to clear out the lungs by periodically lowering the pressure in them. According to this theory, yawning in adults is just a developmental fossil with no biological function. But, while accepting that not everything in life can be explained by Darwinian evolution, there are sound reasons for being skeptical of theories like this one, which avoid the issue of what yawning does for adults. Yawning is distracting, consumes energy and takes time. It is almost certainly doing something significant in adults as well as in fetuses. What could it be?

7. The word “periodically” in the passage is closest in the meaning to
- ☐ continuously
 - ☐ quickly
 - ☐ regularly
 - ☐ carefully
8. According to the developmental theory of yawning presented in paragraph 3, what is the role of yawning?
- ☐ It caused hiccups, which aid in the development of the lungs.
 - ☐ It controls the amount of pressure the lungs place on other developing organs.
 - ☐ It prevents amniotic fluid from entering the lungs.
 - ☐ It removes a potentially harmful fluid from the lungs.
9. Paragraph 3 supports which of the following statements about the development theory of yawning?
- ☐ The theory is attractive because it explains yawning from the perspective of Darwinian evolution.
 - ☐ The theory is unsatisfactory because it cannot explain the lung deformities of infants.
 - ☐ The theory is questionable because it does not explain why a useless and inconvenient behavior would

continue into adulthood.

- The theory is incomplete because it does not explain all the evolutionary stages in the development of yawning.

Paragraph 4: The empirical evidence, such as it is, suggests an altogether different function for yawning—namely, that yawning prepares us for a change in activity level. Support for this theory came from a study of yawning behavior in everyday life. Volunteers wore wrist-mounted devices that automatically recorded their physical activity for up to two weeks: the volunteers also recorded their yawns by pressing a button on the device each time they yawned. The data showed that yawning tended to occur about 15 minutes before a period of increased behavioral activity. Yawning bore no relationship to sleep patterns, however. This accords with anecdotal evidence that people often yawn in situations where they are neither tired nor bored, but are preparing for impending mental and physical activity. Such yawning is often referred to as "incongruous" because it seems out of place, at least on the tiredness view: soldiers yawning before combat, musicians yawning before performing, and athletes yawning before competing. Their yawning seems to have nothing to do with sleepiness or boredom—quite the reverse—but it does precede a change in activity level.

10. The word "empirical" in the passage is closest in meaning to

- reliable
- based on common sense
- relevant
- based on observation

11. The study of yawning behavior discussed in paragraph 4 supports which of the following conclusions?

- Yawning is associated with an expectation of increased physical activity.
- Yawning occurs more frequently when people are asked to record their yawning.
- People tend to yawn about fifteen minutes before they become tired or bored.
- Mental or physical stress tends to make people yawn.

12. Why does the author mention "soldiers yawning before combat, musicians yawning before performing, and athletes yawning before competing"?

- To argue that just the expectation of physical activity can make some people feel tired
- To explain how the view that people yawn because they are tired accounts for yawning before stressful situations
- To support the view that yawning helps prepare a person for mental or physical exertion
- To provide anecdotal evidence that conflicts with the experience of the volunteers in the study

Another flaw of the tiredness theory is that yawning does not raise alertness or physiological activity, as the theory would predict. When researchers measured the heart rate, muscle tension and skin conductance of people before, during and after yawning, they did detect some changes in skin conductance following yawning, indicating a slight increase in physiological activity. However, similar changes occurred when the subjects were asked simply to open their mouths or to breathe deeply. Yawning did nothing special to their state of physiological activity. Experiments have also cast serious doubt on the belief that yawning is triggered by a drop in blood oxygen or a rise in blood carbon dioxide. ■ Volunteers were told to think about yawning while they breathed either normal air, pure oxygen, or an air mixture with an above-normal level of carbon dioxide. ■ If the theory was correct, breathing air with extra carbon dioxide should have triggered yawning, while breathing pure oxygen should have suppressed yawning. ■ In fact, neither condition made any difference to the frequency of yawning, which remained constant at about 24 yawns per hour. ■ Another experiment demonstrated that physical exercise, which was sufficiently vigorous to double the rate of breathing, had no effect on the frequency of yawning. Again the implication is that yawning has little or nothing to do

with oxygen.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

This, however, was not the case

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4

15. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THERR answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

The tiredness theory of yawning does not seem to explain why yawning occurs.

- ☐ Although earlier scientific studies strongly supported the tiredness theory, new evidence has cast doubt on these findings.
- ☐ Evidence has shown that yawning is almost completely unrelated to amount of oxygen in the blood and is unrelated to sleep behavior.
- ☐ Some have proposed that yawning plays a role in the development of the lungs before birth but that it serves no purpose in adults.
- ☐ Fluids in the lungs of the fetus prevent yawning from occurring, which disproves the developmental theory of yawning.
- ☐ New studies, along with anecdotal evidence, have shown that the frequency of yawning increases during extended periods of inactivity.
- ☐ There is some evidence that suggests that yawning prepares the body and mind for a change in activity level.

参考答案:

1. B
2. A
3. A
4. C
5. D
6. B
7. C
8. D
9. C
10. D
11. A
12. C
13. C
14. Evidence has shown ...
Some have proposed ...
There is some evidence ...

参考译文：

打哈欠的奥秘

根据传统理论，当人们无聊或者困倦时才会打哈欠。睡眠不足或无聊时会引起浅呼吸，打哈欠可通过抑制浅呼吸导致的血氧水平下降，达到提高人体警觉的功能。但遗憾的是，少数对于打哈欠的科学研究并没有找到任何关于打哈欠频率与个人睡眠时长或着疲劳程度之间的联系。最近所有用于支持疲劳理论的研究是为了确认成人在工作日比在周末打哈欠的频率更高；学生在小学一年级要比在幼儿园时打哈欠的频率要高。

疲劳理论的另一个缺陷是打哈欠并不能像该理论所预期的那样提高人体警觉或者提高生理兴奋性。研究人员在（志愿者）打哈欠的前、中、后三个阶段均测量了心率、肌肉张力以及皮肤传导性，而他们也测得皮肤传导性随着打哈欠的确存在一些变化，这一变化表明生理兴奋性的确存在着轻微的增强。但是，在实验者受到指令张开嘴或深呼吸时，皮肤传导性也发生了相似的变化。打哈欠对于生理兴奋性的状态并无特殊作用。实验结果对于“打哈欠是由血氧水平下降或由血液中二氧化碳含量上升所引起的”这一论断产生了严重怀疑。志愿者被告知当他们吸入普通空气、纯氧亦或是高于正常水平的二氧化碳时要想着打哈欠。如果疲劳理论是正确的，那么当人吸入额外的二氧化碳时，应该能够激发打哈欠；当吸入纯氧时应该能够抑制打哈欠。但实际上，在这两种条件下，打哈欠的频率并无任何差异，均维持在稳定的每小时 24 个左右。另一个实验证明，即使是可以让呼吸频率翻倍的剧烈运动对于打哈欠频率也毫无影响。这再一次说明打哈欠几乎或完全与氧气无关。

一个完全不同的理论认为，打哈欠是助于幼儿肺部的发育，但是对于成年人来说并无任何生理功效。这也从一个侧面暗示了打哈欠和打嗝儿或许能够清理胎儿的呼吸系统。胎儿的肺会分泌一种与母亲的羊水相混合的液体。当患有先天性肺不张的婴儿的肺部阻止这种液体从肺中流出时，在婴儿出生时就可能会导致其肺部的变形。打哈欠很可能是为了通过周期性的降低肺部压力，从而帮助清除肺部中的这些液体。按照该理论，就如同化石形成这一不可逆的过程一般，成年人再打哈欠，已经没有了任何生理功效。但是，当人们已认同达尔文的进化论并不能解释所有现象时，我们有理由去怀疑这一没有解释成年人打哈欠的问题的理论。打哈欠是分散精力的，是费时耗力的。但是，几乎可以肯定是，成年人以及处于发育阶段的胎儿这么做是有重要原因的。那么，原因究竟是什么呢？

实验结果表明，虽然如此，打哈欠确实有着完全不同的功能，换言之，我们打哈欠是为即将改变的活动水平而做的准备。一个“对日常生活中打哈欠行为的研究”支撑了这一论断。志愿者在手腕上携带一种装置，这一装置会自动记录他们在两周里的身体活动情况。另外，志愿者也要通过点击装置上的按钮来记录自己每一次打哈欠的情况。数据显示，哈欠大多出现在增强性的活动的 15 分钟前，但同时指出，打哈欠与睡眠状态没有关系。这一论断符合坊间的传闻：人们通常是既不累也不困，但要准备接下来的脑力活动和体力活动时才会打哈欠。这样的哈欠通常被认为是“不协调的”，因为至少从疲倦状态下的角度看，这样的哈欠似乎与疲惫无关：比如战士们在开始战斗前会打哈欠；音乐家在表演前会打哈欠；运动员在比赛前会打哈欠。他们的哈欠看上去似乎与困倦、疲乏无关，但是恰恰相反，这一行为的确出现在了活动水平的变化之前。

Lightning

Lightning is a brilliant flash of light produced by an electrical discharge from a storm cloud. The electrical discharge takes place when the attractive tension between a region of negatively charged particles and a region of positively charged particles becomes so great that the charged particles suddenly rush together. The coming together of the oppositely charged particles neutralizes the electrical tension and releases a tremendous amount of energy, which we see as lightning. The separation of positively and negatively charged particles takes place during the development of the storm cloud.

The separation of charged particles that forms in a storm cloud has a sandwich-like structure. Concentrations of positively charged particles develop at the top and bottom of the cloud, but the middle region becomes negatively charged. Recent measurements made in the field together with laboratory simulations offer a promising explanation of how this structure of charged particles forms. What happens is that small (millimeter-to centimeter-size) pellets of ice form in the cold upper regions of the cloud. When these ice pellets fall, some of them strike much smaller ice crystals in the center of the cloud. The temperature at the center of the cloud is about -15°C or lower. At such temperatures, the collision between the ice pellets and the ice crystals causes electrical charges to shift so that the ice pellets acquire a negative charge and the ice crystals become positively charged. Then updraft wind currents carry the light, positively charged ice crystals up to the top of the cloud. The heavier negatively charged ice pellets are left to concentrate in the center. This process explains why the top of the cloud becomes positively charged, while the center becomes negatively charged. The negatively charged region is large: several hundred meters thick and several kilometers in diameter. Below this large, cold, negatively charged region, the cloud is warmer than -15°C , and at these temperatures, collisions between ice crystals and falling ice pellets produce positively charged ice pellets that then populate a small region at the base of the cloud.

Most lightning takes place within a cloud when the charge separation within the cloud collapses. However, as the storm cloud develops, the ground beneath the cloud becomes positively charged and lightning can take place in the form of an electrical discharge between the negative charge of the cloud and the positively charged ground. Lightning that strikes the ground is the most likely to be destructive, so even though it represents only 20 percent of all lightning, it has received a lot of scientific attention.

Using high-speed photography, scientists have determined that there are two steps to the occurrence of lightning from a cloud to the ground. First, a channel, or path, is formed that connects the cloud and the ground. Then a strong current of electrons follows that path from the cloud to the ground, and it is that current that illuminates the channel as the lightning we see.

The formation of the channel is initiated when electrons surge from the cloud base toward the ground. When a stream of these negatively charged electrons comes within 100 meters of the ground it is met by a stream of positively charged particles that comes up from the ground. When the negatively and positively charged streams meet, a complete channel connecting the cloud and the ground is formed. The channel is only a few centimeters in diameter, but that is wide enough for electrons to follow the channel to the ground in the visible form of a flash of lightning. The stream of positive particles that meets the surge of electrons from the cloud often arises from a tall pointed structure such as a metal flagpole or a tower. That is why the subsequent lightning that follows the completed channel often strikes a tall structure.

Once a channel has been formed, it is usually used by several lightning discharges, each of them consisting of a

stream of electrons from the cloud meeting a stream of positive particles along the established path. Sometimes, however, a stream of electrons following an established channel is met by a positive stream making a new path up from the ground. The result is a forked lightning that strikes the ground in two places.

Paragraph1 : Lightning is a brilliant flash of light produced by an electrical discharge from a storm cloud. The electrical discharge takes place when the attractive tension between a region of negatively charged particles and a region of positively charged particles becomes so great that the charged particles suddenly rush together. The coming together of the oppositely charged particles neutralizes the electrical tension and releases a tremendous amount of energy, which we see as lightning. The separation of positively and negatively charged particles takes place during the development of the storm cloud.

1. According to paragraph 1, all of the following take place in the development of a flash of lightening except
 - ☐ great tension between two oppositely charged regions
 - ☐ an increase in negatively charged particles over positively charged particles
 - ☐ oppositely charged particles coming together
 - ☐ the release of electrical energy in the form of visible light
2. The word “tremendous” in the passage is closest in meaning to
 - ☐ distinct
 - ☐ growing
 - ☐ huge
 - ☐ immediate

Paragraph 2: The separation of charged particles that forms in a storm cloud has a sandwich-like structure. Concentrations of positively charged particles develop at the top and bottom of the cloud, but the middle region becomes negatively charged. Recent measurements made in the field together with laboratory simulations offer a promising explanation of how this structure of charged particles forms. What happens is that small (millimeter-to centimeter-size) pellets of ice form in the cold upper regions of the cloud. When these ice pellets fall, some of them strike much smaller ice crystals in the center of the cloud. The temperature at the center of the cloud is about -15°C or lower. At such temperatures, the collision between the ice pellets and the ice crystals causes electrical charges to shift so that the ice pellets acquire a negative charge and the ice crystals become positively charged. Then updraft wind currents carry the light, positively charged ice crystals up to the top of the cloud. The heavier negatively charged ice pellets are left to concentrate in the center. This process explains why the top of the cloud becomes positively charged, while the center becomes negatively charged. The negatively charged region is large: several hundred meters thick and several kilometers in diameter. Below this large, cold, negatively charged region, the cloud is warmer than -15°C, and at these temperatures, collisions between ice crystals and falling ice pellets produce positively charged ice pellets that then populate a small region at the base of the cloud.

3. According to paragraph2, what causes ice crystal to become positively charged?
 - ☐ Collisions with ice pellets
 - ☐ Collisions with negatively charged ice crystals at the base of the cloud
 - ☐ Becoming concentrated in the central region of the cloud
 - ☐ Forming at a temperature greater than -15°C

-
4. The word “acquire” in the passage is closest in meaning to
- ☐ reject
 - ☐ obtain
 - ☐ need
 - ☐ produce
5. According to paragraph2, why are positively charged ice pellets produced in the lower part of the cloud?
- ☐ Collisions between ice crystals and ice pellets increase in number in the lower part of the cloud.
 - ☐ The lower part of the cloud is smaller than the region above it.
 - ☐ More ice pellets than ice crystals reach the lower part of the cloud.
 - ☐ Temperature in the lower part of the cloud are warmer than -15°C .
6. According to paragraph2, the middle region of a cloud becomes negatively charged due to all of the following EXCEPT
- ☐ a shift of electrical charged between ice pellets and ice crystals
 - ☐ negatively charged ice pellets that remain in the middle
 - ☐ a temperature of -15°C or less
 - ☐ the development of a positive charge at the base of the cloud

Paragraph 3: Most lightning takes place within a cloud when the charge separation within the cloud collapses. However, as the storm cloud develops, the ground beneath the cloud becomes positively charged and lightning can take place in the form of an electrical discharge between the negative charge of the cloud and the positively charged ground. Lightning that strikes the ground is the most likely to be destructive, so even though it represents only 20 percent of all lightning, it has received a lot of scientific attention.

7. The author remarks that “Lightning that strikes the ground is the most likely to be destructive” in order to explain why
- ☐ this form of lightning has been investigated so much
 - ☐ this form of lightning is not as common as lightning within a cloud
 - ☐ scientific understanding of this form of lightning is important
 - ☐ the buildup of positive charge on the ground beneath a storm cloud can have serious consequences

Paragraph 4: Using high-speed photography, scientists have determined that there are two steps to the occurrence of lightning from a cloud to the ground. First, a channel, or path, is formed that connects the cloud and the ground. Then a strong current of electrons follows that path from the cloud to the ground, and it is that current that illuminates the channel as the lightning we see.

8. The word “illuminates” in the passage is closet in meaning to
- ☐ opens
 - ☐ completes
 - ☐ lights
 - ☐ electrifies

Paragraph 5: The formation of the channel is initiated when electrons surge from the cloud base toward the ground. When a stream of these negatively charged electrons comes within 100 meters of the ground it is met by a stream of positively charged particles that comes up from the ground. When the negatively and positively charged streams meet, a complete channel connecting the cloud and the ground is formed. The channel is only a few

centimeters in diameter, but that is wide enough for electrons to follow the channel to the ground in the visible form of a flash of lightning. The stream of positive particles that meets the surge of electrons from the cloud often arises from a tall pointed structure such as a metal flagpole or a tower. That is why the subsequent lightning that follows the completed channel often strikes a tall structure.

9. According to paragraph 5, which of the following is true of the stream of charged particles from the ground?
- ☐ It prevents streams of electrons from the cloud from striking the ground.
 - ☐ It completes a channel that connects the storm cloud with the ground.
 - ☐ It produces a stream of electrons from the cloud.
 - ☐ It widens the path made by the initial stream of electrons from the cloud.
10. Which of the following claims about lightning strikes can be inferred from paragraph 5?
- ☐ During a lightning strike the diameter of the channel the electrons follow is considerably enlarged beyond a few centimeters.
 - ☐ A building is unlikely to be hit by lightning unless it is at least 100 meters tall.
 - ☐ A building is hit by a lightning strike because the building itself has first determined the path the lightning then takes to it.
 - ☐ The light of a lightning strike first appears at the point where the streams of negative and positive particles meet.
11. It can be inferred from paragraph 2 that part of the reason that the top of a storm cloud becomes positively charged is that
- ☐ the top of the cloud is warmer than the middle of the cloud
 - ☐ the middle of the cloud is already occupied by positively charged particles
 - ☐ the negatively charged ice pellets are too heavy to be carried by the updrafts that move ice crystals
 - ☐ collisions between ice pellets in the top of the cloud produce mainly positively charged particles
12. The word “initiated” is closest in meaning to
- ☐ started
 - ☐ intensified
 - ☐ finished
 - ☐ expected

The formation of the channel is initiated when electrons surge from the cloud base toward the ground. When a stream of these negatively charged electrons comes within 100 meters of the ground it is met by a stream of positively charged particles that comes up from the ground. When the negatively and positively charged streams meet, a complete channel connecting the cloud and the ground is formed. The channel is only a few centimeters in diameter, but that is wide enough for electrons to follow the channel to the ground in the visible form of a flash of lightning. The stream of positive particles that meets the surge of electrons from the cloud often arises from a tall pointed structure such as a metal flagpole or a tower. That is why the subsequent lightning that follows the completed channel often strikes a tall structure. ■

Once a channel has been formed, it is usually used by several lightning discharges, each of them consisting of a stream of electrons from the cloud meeting a stream of positive particles along the established path. Sometimes, however, a stream of electrons following an established channel is met by a positive stream making a new path up from the ground. ■ The result is a forked lightning that strikes the ground in two places. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

The descending stream of electrons divides at the point where the new positive-stream channel intersects the established path.

Where would the sentence best fit?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Lightning takes place when a separation of a positive and negative electrical particles that develops in a storm could suddenly collapses.

- ☐ A storm cloud first develops a positively charged layer at the top, then a negatively charged middle layer, and finally, a positively charged layer at the bottom.
- ☐ A separation of oppositely charged particles in clouds develops from collisions of falling ice pellets with ice crystals, from updrafts, and from temperature variations.
- ☐ Lightning from cloud to ground follows a channel that forms when a stream of electrons moving down meets a stream of positive particles coming up from the ground.
- ☐ Field studies, laboratory simulations, and high-speed photography have all been used to investigate the way charge separations develop in clouds.
- ☐ Lightning from a cloud to the ground is more likely to be destructive than is lightning that takes place within a cloud.
- ☐ Once a channel has been formed, it is usually used by several successive electrical discharges that illuminate the channel as flashes of lightning.

参考答案:

1. B
2. C
3. A
4. B
5. D
6. D
7. A
8. C
9. B
10. C
11. C
12. A
13. C
14. A separation of ...
Lightning from cloud to ground ...
Once a channel has ...

闪电

闪电是一道由雷雨云放电产生的明亮夺目的闪光。当带正电荷粒子区域与带负电荷粒子区域之间的吸引力大到使带电粒子瞬间碰撞到一起就会发生放电现象。相反的带电粒子的结合中和了电压并释放出巨大的能力，这就是我们看到的闪电。在雷雨云形成的过程中带正电荷粒子会与带正负电荷粒子的粒子相互分离。

形成雷雨云的带电粒子的分离具有一种三明治结构。在云的顶部和底部形成聚集的带正电粒子，但是在中间的区域形成的是带负电的粒子。近期的野外测量以及实验室模拟为这种带电粒子的排列结构提供了可能的解释。实际上在此过程中在云层较冷的上部区域形成了细小的（毫米到厘米级的）冰丸。当这些冰丸飘落时，一部分会与云中间比冰丸小得多的冰晶相撞。云中心的温度大约在零下 **15** 摄氏度或者更低。在此温度下，冰丸和冰晶的撞击会使电荷发生迁移，冰丸由此获得了负电而冰晶获得了正电。随后上升气流会将较轻的正电冰晶带到云的顶部。较重的负电冰丸会留在云层中部并积累起来。这个过程解释了为什么云的顶部带正电而中部带负电。带负电的区域非常大：厚度达数百米，直径达几千米。位于这片较冷的带负电的巨大区域之下的云层的温度要高于零下 **15** 摄氏度，在此温度下，冰晶和降落的冰丸的碰撞会产生带正电荷的冰丸，于是在云层的底部聚集成一小片区域。

大部分的闪电发生在云层塌陷电荷分离的云层内部。但是，随着雷雨云的发展，云层下方的地面会带上正电，闪电就能够在带负电的云和带正电的陆地之间以放电的形式发生。击中地面的闪电是最有可能带有破坏性的，所以即使它只占有闪电 **20%**，但是它吸引了不少科学关注。

通过高速摄影，科学家已经确定发生从云层到地面的闪电的过程有两步。首先，会形成将云惻然那个和地面连接起来的通道或者路径。然后强电流会通过这条通道从云层传向地面，我们所看到的闪电就是照亮了通道的电流。

电子从云层基部涌向地面就会开始形成通道。当这些负电荷距离地面不到 **100** 米的时候，会遇到来自地面的带正电的粒子流。一旦正负带电粒子流相遇，就会形成一条连接云层和地面的完整的通道。这个通道直径仅有几厘米，但是已经足以使电子以一道闪电这种可见的形式通过通道到达地面。那些会遇到从云层涌来的电子的带正电的粒子流通常来自于高大的带尖顶的建筑物例如金属旗杆或塔。这就是为什么随后通过完整通道的闪电往往会击中高层建筑的原因。

一旦通道形成，同一条通道可以发生多次闪电放电，每一次都是由来自云层的电子流和与其相遇的沿着建立好的通道的带正电的粒子流组成。但是有时候，一股电子流顺着建立好的通道遇到带正电的电子流时会在地面上产生一个新的通道。结果就是形成在两处击中地面的叉状闪电。

The Roman Army's Impact on Britain

In the wake of the Roman Empire's conquest of Britain in the first century A.D., a large number of troops stayed in the new province, and these troops had a considerable impact on Britain with their camps, fortifications, and participation in the local economy. Assessing the impact of the army on the civilian population starts from the realization that the soldiers were always unevenly distributed across the country. Areas rapidly incorporated into the empire were not long affected by the military. Where the army remained stationed, its presence was much more influential. The imposition of a military base involved the requisition of native lands for both the fort and the territory needed to feed and exercise the soldiers' animals. The imposition of military rule also robbed local leaders of opportunities to participate in local government, so social development was stunted and the seeds of disaffection sown. This then meant that the military had to remain to suppress rebellion and organize government.

Economic exchange was clearly very important as the Roman army brought with it very substantial spending power. Locally¹ a fort had two kinds of impact. Its large population needed food and other supplies. Some of these were certainly brought from long distances, but demands were inevitably placed on the local area. Although goods could be requisitioned, they were usually paid for, and this probably stimulated changes in the local economy. When not campaigning, soldiers needed to be occupied; otherwise they represented a potentially dangerous source of friction and disloyalty. Hence a writing tablet dated 25 April tells of 343 men at one fort engaged on tasks like shoemaking, building a bathhouse, operating kilns, digging clay, and working lead. Such activities had a major effect on the local area, in particular with the construction of infrastructure such as roads, which improved access to remote areas.

Each soldier received his pay, but in regions without a developed economy there was initially little on which it could be spent. The pool of excess cash rapidly stimulated a thriving economy outside fort gates. Some of the demand for the services and goods was no doubt fulfilled by people drawn from far afield, but some local people certainly became entwined in this new economy. There was informal marriage with soldiers, who until AD 197 were not legally entitled to wed, and whole new communities grew up near the forts. These settlements acted like small towns, becoming centers for the artisan and trading populations.

The army also provided a mean of personal advancement for auxiliary soldiers recruited from the native peoples, as a man obtained hereditary Roman citizenship on retirement after service in an auxiliary regiment. Such units recruited on an ad hoc (as needed) basis from the area in which they were stationed, and there was evidently large-scale recruitment within Britain. The total numbers were at least 12,500 men up to the reign of the emperor Hadrian (A.D. 117-138), with a peak around A.D. 80. Although a small proportion of the total population, this perhaps had a massive local impact when a large proportion of the young men were removed from an area. Newly raised regiments were normally transferred to another province from whence it was unlikely that individual recruits would ever return. Most units raised in Britain went elsewhere on the European continent, although one is recorded in Morocco. The reverse process brought young men to Britain, where many continued to live after their 20 to 25 years of service, and this added to the cosmopolitan Roman character of the frontier population. By the later Roman period, frontier garrisons (groups of soldiers) were only rarely transferred, service in units became effectively hereditary, and forts were no longer populated or maintained at full strength.

This process of settling in as a community over several generations, combined with local recruitment, presumably accounts for the apparent stability of the British northern frontier in the later Roman period. It also explains why some

¹ with respect to a particular place or situation.

of the forts continued in occupation long after Rome ceased to have any formal authority in Britain, at the beginning of the fifth century A.D. The circumstances that had allowed natives to become Romanized also led the self-sustaining military community of the frontier area to become effectively British.

Paragraph 1: In the wake of the Roman Empire's conquest of Britain in the first century A.D., a large number of troops stayed in the new province, and these troops had a considerable impact on Britain with their camps, fortifications, and participation in the local economy. Assessing the impact of the army on the civilian population starts from the realization that the soldiers were always unevenly distributed across the country. Areas rapidly incorporated into the empire were not long affected by the military. Where the army remained stationed, its presence was much more influential. The imposition of a military base involved the requisition of native lands for both the fort and the territory needed to feed and exercise the soldiers' animals. The imposition of military rule also robbed local leaders of opportunities to participate in local government, so social development was stunted and the seeds of disaffection sown. This then meant that the military had to remain to suppress rebellion and organize government.

1. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
 - ☐ Many Roman soldiers remained in Britain after conquering it, and their presence had a strong influence.
 - ☐ The new Roman province of Britain seemed to awaken in the first century A.D. as the local economy improved.
 - ☐ Camps, fortifications, and economic change contributed to the Roman conquest of Britain.
 - ☐ With the conquest of Britain by Roman troops, the Roman Empire gained considerable economic strength.
2. According to paragraph 1, the Roman army had the most influence on those areas of Britain that were
 - ☐ conquered first
 - ☐ near population centers
 - ☐ used as military bases
 - ☐ rapidly incorporated into the empire
3. According to paragraph 1, what effect did military occupation have on the local population?
 - ☐ It encouraged more even distribution of the population and the settlement of previously undeveloped territory.
 - ☐ It created discontent and made continuing military occupation necessary.
 - ☐ It required local labor to construct forts and feed and exercise the soldiers' animals.
 - ☐ It provided local leaders with opportunities to participate in governance.
4. The word "suppress" in the passage is closest in meaning to
 - ☐ respond to
 - ☐ warn against
 - ☐ avoid the impact of
 - ☐ stop by force

Paragraph 2: Economic exchange was clearly very important as the Roman army brought with it very substantial spending power. Locally a fort had two kinds of impact. Its large population needed food and other supplies. Some of these were certainly brought from long distances, but demands were inevitably placed on the local area. Although goods could be requisitioned, they were usually paid for, and this probably stimulated changes in the local economy. When not campaigning, soldiers needed to be occupied; otherwise they represented a potentially dangerous source of friction and disloyalty. Hence a writing tablet dated 25 April tells of 343 men at one fort engaged on tasks like

shoemaking, building a bathhouse, operating kilns, digging clay, and working lead. Such activities had a major effect on the local area, in particular with the construction of infrastructure such as roads, which improved access to remote areas.

5. The word “friction” in the passage is closest in meaning to
- ☐ rebellion
 - ☐ conflict
 - ☐ neglect
 - ☐ crime
6. The author mentions “343 men at one fort engaged on tasks like shoemaking, building a bathhouse, operating kilns, digging clay, and working lead” in order to
- ☐ describe the kinds of tasks soldiers were required to perform as punishment for disloyalty or misdeeds
 - ☐ illustrate some of the duties assigned to soldiers to keep them busy and well-behaved when not involved in military campaigns
 - ☐ provide evidence that Roman soldiers had a negative effect on the local area by performing jobs that had been performed by native workers
 - ☐ argue that the soldiers would have been better employed in the construction of infrastructure such as roads

Paragraph 3: Each soldier received his pay, but in regions without a developed economy there was initially little on which it could be spent. The pool of excess cash rapidly stimulated a thriving economy outside fort gates. Some of the demand for the services and goods was no doubt fulfilled by people drawn from far afield, but some local people certainly became entwined in this new economy. There was informal marriage with soldiers, who until AD 197 were not legally entitled to wed, and whole new communities grew up near the forts. These settlements acted like small towns, becoming centers for the artisan and trading populations.

7. The phrase “entitled to” in the passage is closest in meaning to
- ☐ given the right to
 - ☐ able to afford to
 - ☐ encouraged to
 - ☐ required to
8. According to paragraph 3, how did the soldiers meet their needs for goods and services?
- ☐ Their needs were met by the army, and all of their economic transactions took place within the fort.
 - ☐ Most of their needs were met by traveling tradespeople who visit the forts.
 - ☐ During their days off, soldiers traveled to distant towns to make purchases.
 - ☐ They bought what they needed from the artisans and traders in nearby towns.

Paragraph 4: The army also provided a means of personal advancement for auxiliary soldiers recruited from the native peoples, as a man obtained hereditary Roman citizenship on retirement after service in an auxiliary regiment. Such units recruited on an ad hoc (as needed) basis from the area in which they were stationed, and there was evidently large-scale recruitment within Britain. The total numbers were at least 12,500 men up to the reign of the emperor Hadrian (A.D. 117-138), with a peak around A.D. 80. Although a small proportion of the total population, this perhaps had a massive local impact when a large proportion of the young men were removed from an area. Newly raised regiments were normally transferred to another province from whence it was unlikely that individual recruits would ever return. Most units raised in Britain went elsewhere on the European continent, although one is recorded in Morocco. The reverse process brought young men to Britain, where many continued to live after their 20 to 25 years of service, and this added to the cosmopolitan Roman character of the frontier population. By the later Roman period,

frontier garrisons (groups of soldiers) were only rarely transferred, service in units became effectively hereditary, and forts were no longer populated or maintained at full strength.

9. According to paragraph 4, which of the following is true of Britain's auxiliary regiments of the Roman army?
- ☐ Membership in these regiments reached its highest point during the reign of the emperor Hadrian.
 - ☐ Most of the units recruited in Britain were sent to Morocco and other stations outside Europe.
 - ☐ Soldiers served in the regiments for many years and after retirement generally stayed where they had been stationed.
 - ☐ Most of the regiments stationed on the frontier were new units transferred from a neighboring province.
10. According to paragraph 4, all of the following changes could be seen in the frontier garrisons by the later Roman period EXCEPT:
- ☐ Membership in the units passed from father to son.
 - ☐ Fewer soldiers were stationed at the forts.
 - ☐ Soldiers usually were not transferred to different locations.
 - ☐ Frontier units became more effective and proficient.

Paragraph 5: This process of settling in as a community over several generations, combined with local recruitment, presumably accounts for the apparent stability of the British northern frontier in the later Roman period. It also explains why some of the forts continued in occupation long after Rome ceased to have any formal authority in Britain, at the beginning of the fifth century A.D. The circumstances that had allowed natives to become Romanized also led the self-sustaining military community of the frontier area to become effectively British.

11. Why does the author mention that “some of the forts continued in occupation long after Rome ceased to have any formal authority in Britain” ?
- ☐ To emphasize the degree to which the stability of the British northern frontier depended on firm military control
 - ☐ To suggest that the Romans continued to occupy Britain even after they had formally given up the right to do so
 - ☐ To support the claim that forts continued to serve an important economic function even after they ceased to be of any military use
 - ☐ To describe one of the things that resulted from frontier garrisons' becoming part of the local community over a long period
12. The word “circumstances” in the passage is closest in meaning to
- ☐ experiences
 - ☐ communities
 - ☐ conditions
 - ☐ laws

Paragraph 2: Economic exchange was clearly very important as the Roman army brought with it very substantial spending power. Locally a fort had two kinds of impact. Its large population needed food and other supplies. Some of these were certainly brought from long distances, but demands were inevitably placed on the local area. Although goods could be requisitioned, they were usually paid for, and this probably stimulated changes in the local economy. When not campaigning, soldiers needed to be occupied; otherwise they represented a potentially dangerous source of friction and disloyalty. Hence a writing tablet dated 25 April tells of 343 men at one fort engaged on tasks like shoemaking, building a bathhouse, operating kilns, digging clay, and working lead. Such activities had a major effect on the local area, in particular with the construction of infrastructure such as roads, which improved access to remote

areas.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

One solution was to keep them busy as sources of labor.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentence do not belong to the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

The Roman army's occupation of Britain influenced and changed the local population.

- ☐
- ☐
- ☐

Answer Choices

- ☐ Although the presence of the army in certain areas caused resentment among the local population, it provided important services such as building infrastructure.
- ☐ By recruiting unemployed young men for its auxiliary units, the army made it possible for them to stay in their home towns and provide financial support for their families.
- ☐ Large quantities of cash from soldiers' pay stimulated development, but also drove up prices, making it hard for local residents to afford goods and services.
- ☐ Though the army appropriated land and some goods, it also paid for many supplies, stimulating local economic growth.
- ☐ The forts contributed to the quality of local crafts by bringing in artisans from distant places who brought with them new skills and techniques.
- ☐ Roman soldiers started families with local inhabitants, and over the generations, the military community became a stable part of British society.

参考答案:

1. A
2. C
3. B
4. D
5. B
6. B
7. A
8. D
9. C
10. D
11. D
12. C
13. 4th square
14. Although the presence...
Though the army...
Roman soldiers started...

罗马军队对不列颠的影响

在公元一世纪罗马帝国成功征服不列颠之后，派驻了大量军队驻守在这片新省区，他们对不列颠的军事有着重要的影响，同时对当地经济也产生了可观的影响。评估军队对人口数量的影响要从士兵在国家内不均匀的分配开始讲起，那些很快就并入帝国的地区基本就不再受军队的影响。而那些保留军队的地区，军队的存在产生了重大的影响。军事基地需要当地的土地，另外士兵们打仗用的牲畜也需要在军事基地和领地内喂养和训练，这些都需要当地去承担。军事规定也强行剥夺了本地领导者参与政府的机会，因而社会的发展收到了阻碍，不满的情绪开始蔓延。这就意味着军队不得不维持对反叛的高压政策以及承担组织政府的责任。

因为罗马军队有着强大的消费潜力，经济交流就显得非常重要。在当地，一个军事基地有两种影响，一方面大量的人口需要食物和其他的供给，这其中肯定会有一部分会来自后方补给，但是有些东西势必要从本地征用。尽管这些商品可以强征，但是军队会给予报酬，这些都会刺激当地经济的发展。另一方面当没有战争时，士兵们需要干活，否则他们就会成为摩擦和叛变的潜在根源。一块标着 4 月 25 日的写字板讲述了一个基地内 243 名士兵干着诸如做鞋，造房子，操作炉子，挖坑和铸铅之类的工作。这样的活动对当地有着显著的影响，特别是基础设施的建设如道路，这些道路能够通往较远的地区。

每一个士兵都会有报酬，但是在那些经济欠发达地区花不了那么多的钱。所以这些多余的钱迅速刺激起了基地外的经济，一些服务需求和商品需求毫无疑问的会有那些来自外地的人来完成，当然本地人也会卷入到这个新的经济体系中。士兵中出现了非法婚姻，这种婚姻直到公元 197 年才得到了法律的承认，从而在这些军事基地周围发展出一些全新的社会群体。这些定居地就像城镇一样，成为了工匠和生意人的聚集地。

在本地人里面，作为一个服役于军团辅助机构的男性可以在退休时得到世袭罗马公民的地位。这样的人就是从这些驻地中特别招募而来，并且不列颠的招募规模特别的大。在哈德良皇帝(A.D. 117-138)统治时期总数至少有 12500 个，在公元 80 年时达到顶峰。尽管这只是总人口中的一小部分，但是它对很多那些迁走的年轻男性产生了巨大的影响。一个新建立起来的军团通常会转移到一个不可能回到原籍的省区。大多数不列颠的军团都去了欧洲大陆的一些地方，尽管记载下来的只有摩洛哥一个地方。相反的其他地方的军团调到不列颠，通常他们会在那里服役 20 到 25 年，这些使得帝国边境的罗马人性格更加放荡。在罗马时期的晚期前线卫戍部队很少调动，军团中的的服务得到了有效地延续，而军事基地却没有有人居住或者全力去维持。

这种像群落一样的定居过程持续了好几代，再结合当地的士兵招募大概就是罗马帝国后期英国北部边境比较稳定的原因，这也能解释为什么五世纪初时这些军事基地即使在罗马帝国在不列颠没有官方机构的情况下依然存在。这种情况使得一些本地人罗马化同时也使得在边境自给自足的军事组织变成了不列颠人。

Succession, Climax, and Ecosystems

In the late nineteenth century, ecology began to grow into an independent science from its roots in natural history and plant geography. The emphasis of this new "community ecology" was on the composition and structure of communities consisting of different species. In the early twentieth century, the American ecologist Frederic Clements pointed out that a succession of plant communities would develop after a disturbance such as a volcanic eruption, heavy flood, or forest fire. An abandoned field, for instance, will be invaded successively by herbaceous plants (plants with little or no woody tissue), shrubs, and trees, eventually becoming a forest. Light-loving species are always among the first invaders, while shade-tolerant species appear later in the succession.

Clements and other early ecologists saw almost lawlike regularity in the order of succession, but that has not been substantiated. A general trend can be recognized, but the details are usually unpredictable. Succession is influenced by many factors: the nature of the soil, exposure to sun and wind, regularity of precipitation, chance colonizations, and many other random processes.

The final stage of a succession, called the climax by Clements and early ecologists, is likewise not predictable or of uniform composition. There is usually a good deal of turnover in species composition, even in a mature community. The nature of the climax is influenced by the same factors that influenced succession. Nevertheless, mature natural environments are usually in equilibrium. They change relatively little through time unless the environment itself changes.

For Clements, the climax was a "superorganism," an organic entity. Even some authors who accepted the climax concept rejected Clements' characterization of it as a superorganism, and it is indeed a misleading metaphor. An ant colony may be legitimately called a superorganism because its communication system is so highly organized that the colony always works as a whole and appropriately according to the circumstances. But there is no evidence for such an interacting communicative network in a climax plant formation. Many authors prefer the term "association" to the term "community" in order to stress the looseness of the interaction.

Even less fortunate was the extension of this type of thinking to include animals as well as plants. This resulted in the "biome," a combination of coexisting flora and fauna. Though it is true that many animals are strictly associated with certain plants, it is misleading to speak of a "spruce-moose biome," for example, because there is no internal cohesion to their association as in an organism. The spruce community is not substantially affected by either the presence or absence of moose. Indeed, there are vast areas of spruce forest without moose. The opposition to the Clementsian concept of plant ecology was initiated by Herbert Gleason, soon joined by various other ecologists. Their major point was that the distribution of a given species was controlled by the habitat requirements of that species and that therefore the vegetation types were a simple consequence of the ecologies of individual plant species.

With "climax," "biome," "superorganism," and various other technical terms for the association of animals and plants at a given locality being criticized, the term "ecosystem" was more and more widely adopted for the whole system of associated organisms together with the physical factors of their environment. Eventually, the energy-transforming role of such a system was emphasized. Ecosystems thus involve the circulation, transformation, and accumulation of energy and matter through the medium of living things and their activities. The ecologist is concerned primarily with the quantities of matter and energy that pass through a given ecosystem, and with the rates at which they do so.

Although the ecosystem concept was very popular in the 1950s and 1960s, it is no longer the dominant paradigm. Gleason's arguments against climax and biome are largely valid against ecosystems as well. Furthermore, the number of interactions is so great that they are difficult to analyze, even with the help of large computers. Finally, younger ecologists have found ecological problems involving behavior and life-history adaptations more attractive than

measuring physical constants. Nevertheless, one still speaks of the ecosystem when referring to a local association of animals and plants, usually without paying much attention to the energy aspects.

Paragraph 2: Clements and other early ecologists saw almost lawlike regularity in the order of succession, but that has not been substantiated. A general trend can be recognized, but the details are usually unpredictable. Succession is influenced by many factors: the nature of the soil, exposure to sun and wind, regularity of precipitation, chance colonizations, and many other random processes.

1. According to paragraph 2, which of the following is a criticism of Clements' view of succession?
 - ☐ The principles of succession are more lawlike than Clements thought they are.
 - ☐ More evidence is needed to establish Clements' predictions about succession.
 - ☐ The details of succession are affected by random processes.
 - ☐ Many of the factors that determine which plants will grow in an environment, such as the nature of the soil and the exposure to sun, do not change at all.
2. The word "substantiated" in the passage is closest in meaning to
 - ☐ confirmed
 - ☐ noticed
 - ☐ defined
 - ☐ publicized
3. The word "trend" in the passage is closest in meaning to
 - ☐ probability
 - ☐ picture
 - ☐ lawlike regularity
 - ☐ tendency

Paragraph 3: The final stage of a succession, called the climax by Clements and early ecologists, is likewise not predictable or of uniform composition. There is usually a good deal of turnover in species composition, even in a mature community. The nature of the climax is influenced by the same factors that influenced succession. Nevertheless, mature natural environments are usually in equilibrium. They change relatively little through time unless the environment itself changes.

4. The word "likewise" in the passage is closest in meaning to
 - ☐ sometimes
 - ☐ similarly
 - ☐ apparently
 - ☐ consequently

Paragraph 4: For Clements, the climax was a "superorganism," an organic entity. Even some authors who accepted the climax concept rejected Clements' characterization of it as a superorganism, and it is indeed a misleading metaphor. An ant colony may be legitimately called a superorganism because its communication system is so highly organized that the colony always works as a whole and appropriately according to the circumstances. But there is no evidence for

such an interacting communicative network in a climax plant formation. Many authors prefer the term "association" to the term "community" in order to stress the looseness of the interaction.

5. The word "legitimately" in the passage is closest in meaning to
- ☐ commonly
 - ☐ broadly
 - ☐ properly
 - ☐ officially
6. According to paragraph 4, why do many authors prefer the term "association" to "community" when describing a climax plant formation?
- ☐ Because the term "association" does not suggest the presence of a tight network involving interactive communication.
 - ☐ Because the term "association" indicates that the grouping is not necessarily beneficial to all members.
 - ☐ Because the term "community" indicates continuing dynamic development that a climax formation does not have.
 - ☐ Because the term "community" suggests an organization that has been designed for a specific purpose.

Paragraph 5: Even less fortunate was the extension of this type of thinking to include animals as well as plants. This resulted in the "biome," a combination of coexisting flora and fauna. Though it is true that many animals are strictly associated with certain plants, it is misleading to speak of a "spruce-moose biome," for example, because there is no internal cohesion to their association as in an organism. The spruce community is not substantially affected by either the presence or absence of moose. Indeed, there are vast areas of spruce forest without moose. The opposition to the Clementsian concept of plant ecology was initiated by Herbert Gleason, soon joined by various other ecologists. Their major point was that the distribution of a given species was controlled by the habitat requirements of that species and that therefore the vegetation types were a simple consequence of the ecologies of individual plant species.

7. In paragraph 5, the author challenges the idea of a "biome" by noting that
- ☐ there are usually no very strong connections among the plants and animals living in a place
 - ☐ plants and animals respond in the same way to the same circumstances
 - ☐ particular combinations of flora and fauna do not generally come about purely by chance
 - ☐ some animals are dependent on specific kinds of plants for food
8. Why does the author make the statement, "Indeed, there are vast areas of spruce forest without moose" ?
- ☐ To highlight a fact whose significance the ecologist Herbert Gleason had missed
 - ☐ To propose the idea that a spruce forest is by itself a superorganism
 - ☐ To emphasize that moose are not limited to a single kind of environment
 - ☐ To criticize the idea of a spruce-moose biome
9. The word "initiated" in the passage is closest in meaning to
- ☐ approved
 - ☐ identified
 - ☐ started
 - ☐ foreseen
10. According to paragraph 5, Gleason's opposition to the Clementsian views of plant ecology was based on the claim that plant species grow in places where
- ☐ they can enter into mutually beneficial relationships with other species

-
- ☐ conditions suit them, regardless of whether particular other species are present
 - ☐ habitats are available for a wide variety of plant and animal species
 - ☐ their requirements are met, and those of most other species are not

Paragraph 6: With "climax," "biome," "superorganism," and various other technical terms for the association of animals and plants at a given locality being criticized, the term "ecosystem" was more and more widely adopted for the whole system of associated organisms together with the physical factors of their environment. Eventually, the energy-transforming role of such a system was emphasized. Ecosystems thus involve the circulation, transformation, and accumulation of energy and matter through the medium of living things and their activities. The ecologist is concerned primarily with the quantities of matter and energy that pass through a given ecosystem, and with the rates at which they do so.

11. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
- ☐ Unlike the terms "climax", "biome," and "superorganism," which refer to the particular association of plants and animals at a given location, the term "ecosystem" refers specifically to the physical factors within an environment.
 - ☐ The terms "climax," "biome," "superorganism," and "ecosystem" all refer to the system of plants and animals in an associated environment, but some are more controversial than others.
 - ☐ When the older terms of ecology became too technical, they were replaced by the more popular and more widely used term "ecosystem."
 - ☐ The term "ecosystem" gradually replaced discredited terms for the combination of a physical environment and the plants and animals living together in it.
12. According to paragraph 6, what did ecologists mainly study when the ecosystem concept was the dominant paradigm?
- ☐ The physical factors present in different environments
 - ☐ The typical activities of animals and the effect of those activities on plants
 - ☐ The rates at which ecosystems changed from one kind to another
 - ☐ The flow of energy and matter through ecosystems

Paragraph 7: Although the ecosystem concept was very popular in the 1950s and 1960s, it is no longer the dominant paradigm. ■ Gleason's arguments against climax and biome are largely valid against ecosystems as well. ■ Furthermore, the number of interactions is so great that they are difficult to analyze, even with the help of large computers. Finally, younger ecologists have found ecological problems involving behavior and life-history adaptations more attractive than measuring physical constants. ■ Nevertheless, one still speaks of the ecosystem when referring to a local association of animals and plants, usually without paying much attention to the energy aspects. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.
- They may be more interested in researching, for example, the adaptations that some aquatic animals undergo to survive in dry desert environments.**
- Where would the sentence best fit ?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

To review passage. Click [View Text](#).

The study of the combination of plant species that inhabit a particular locality became a scientific

discipline toward the end of the nineteenth century.

-
-
-

Answer Choices

- Areas that are recovering from serious disturbances like volcanic eruptions and heavy floods provide special opportunities to observe the development of plant communities.
- Whether a given species will be found in a given ecosystem strongly depends on what other species it would interact with in that ecosystem.
- Computer-aided studies of entire system of associated organisms together with their environment provide a solid basis for current studies of specific ecological problems.
- According to the earliest theories of ecology, the development of plant communities proceeds in lawlike fashion and results in stable climax communities.
- The idea of associations of plants and animals that function as “superorganisms” was later rejected by biologists who saw no strong evidence in support of that idea.
- The once popular idea of communities as integrated ecosystems has been largely rejected by modern ecologists, who are more interested in problems involving behavior and adaptations.

参考答案:

1. C
2. A
3. D
4. B
5. C
6. A
7. A
8. D
9. C
10. B
11. D
12. D
13. 3rd square
14. According to the...
The idea of...
The once popular...

演替、顶级群落与生态系统

在 19 世纪末期，生态学开始从它的源头——自然历史学和植物地理学中脱离出来成为一门独立的学科。一种新的概念“群落生态”强调的是不同生物构成的群落中的组成和结构。在二十世纪早期，美国生态学家弗雷德里克·克莱门茨指出植物群落的继承需要某种变故例如火山爆发，泥石流或者森林大火。比如一块废弃的土地，就会接连被草类植物（那些没有或只有很少木质结构的植物），灌木，树木攻占，最终形成一片森林。喜阳植物会是第一批占领者，而那些喜阴植物紧接其后。

克莱门茨和其他早期的生态学家在这中顺序中看到了类似于定律的规则，但是这些还没有被证实。我们可以看出大概的趋势，但是细节通常无法预见。其中的顺序受很多因素影响：土壤，曝光率，风，沉降率，形成群落的机会，和其他随机过程。

这种顺序的最后一步，被克莱门茨和早期的生态学家称为顶级群落，它们有独特的构成且无法预知。通常这种系统中物种的构成会有很大的变化率，即使是在成熟的系统中也同样如此。这种顶级群落受到那些影响上述植物入侵过程的因素的影响。无论如何成熟的自然环境通常是平衡的，它们很少改变除非环境发生变化。

对于克莱门茨来讲，顶级群落是一个超级有机体，一个完整的有机体。即使有些作者能接受顶级群落的概念却拒绝接受克莱门茨关于超级有机体的概念，它仍然是一个误导人的隐喻。任何一个群落都可以被称为超级有机体因为它的交流系统组织非常严密并且在某些情形下这些群落能够像一个整体一样巧妙运作。但是没有明显证据表明在顶级群落植物系统中有这样一种相互影响的交流系统。很多作者喜欢用联盟而不是组织的概念以强调这种系统中松散的互相影响的关系。

更不幸的是这种概念要从植物延伸到动物中去。于是就产生了生物群落的概念——一种动物群落和植物群落共存的结合体。

尽管很多动物和植物是紧密联系在一起的，但例如“云杉麋鹿生态系统”这种说法仍然是一种误导人的概念，因为作为有机体它们并没有内在的结合。云杉群落并没有切实的受到麋鹿存在或者不存在的影响。实际上有很多云杉林并没有麋鹿。对克莱门茨关于植物群落概念的反对意见最早是由赫伯特·格里森提出来的，并且获得了很多其他生态学家的支持。他们的主要观点是给定物种的分配是由栖息地物种需求决定的，因此植被类的植物是这种独特的植物系统的直接产物。

尽管顶级群落，生态群落，超级有机体和其他特定环境下结合动物和植物的概念受到抨击，但生态系统——一个由生物体结合起来并且受到物理环境因素影响的观念得到了广泛的接受。最终这样的系统中的能量转换角色受到了重视。生态系统包括通过生物媒介和活动而产生的循环，变形，和能量及物质的聚集。生态学家关注的往往是在给定系统下流过系统的物质和能量的量以及它们流过的速率。

尽管生态系统的概念在十九世纪五六十年代特别流行，但它也不是最权威的范例。格里森关于顶级群落及生物群系的反对观点对生态系统这一概念同样很有效。进一步讲，系统中相互影响如此之多以至于即使借助计算机也很难去分析它们。最后，新生代的生态学家们发现了包括行为及生活史适应性在内的生态问题比测量物理常数更有吸引力。无论如何一个人谈到某一个地区植物和动物的生态系统时通常都不会注意到能量方面的事情。

Discovering the Ice Ages

In the middle of the nineteenth century, Louis Agassiz, one of the first scientists to study glaciers, immigrated to the United States from Switzerland and became a professor at Harvard University, where he continued his studies in geology and other sciences. For his research, Agassiz visited many places in the northern parts of Europe and North America, from the mountains of Scandinavia and New England to the rolling hills of the American Midwest. In all these diverse regions, Agassiz saw signs of glacial erosion and sedimentation. In flat plains country, he saw moraines (accumulations of earth and loose rock that form at the edges of glaciers) that reminded him of the terminal moraines found at the end of valley glaciers in the Alps. The heterogeneous material of the drift (sand, clay, and rocks deposited there) convinced him of its glacial origin.

The areas covered by this material were so vast that the ice that deposited it must have been a continental glacier larger than Greenland or Antarctica. Eventually, Agassiz and others convinced geologists and the general public that a great continental glaciation had extended the polar ice caps far into regions that now enjoy temperate climates. For the first time, people began to talk about ice ages. It was also apparent that the glaciation occurred in the relatively recent past because the drift was soft, like freshly deposited sediment. We now know the age of the glaciation accurately from radiometric dating of the carbon-14 in logs buried in the drift. The drift of the last glaciation was deposited during one of the most recent epochs of geologic time, the Pleistocene, which lasted from 1.8 million to 10,000 years ago. Along the east coast of the United States, the southernmost advance of this ice is recorded by the enormous sand and drift deposits of the terminal moraines that form Long Island and Cape Cod.

It soon became clear that there were multiple glacial ages during the Pleistocene, with warmer interglacial intervals between them. As geologists mapped glacial deposits in the late nineteenth century, they became aware that there were several layers of drift, the lower ones corresponding to earlier ice ages. Between the older layers of glacial material were well-developed soils containing fossils of warm-climate plants. These soils were evidence that the glaciers retreated as the climate warmed. By the early part of the twentieth century, scientists believed that four distinct glaciations had affected North America and Europe during the Pleistocene epoch.

This idea was modified in the late twentieth century, when geologists and oceanographers examining oceanic sediment found fossil evidence of warming and cooling of the oceans. Ocean sediments presented a much more complete geologic record of the Pleistocene than continental glacial deposits did. The fossils buried in Pleistocene and earlier ocean sediments were of foraminifera—small, single-celled marine organisms that secrete shells of calcium carbonate, or calcite. These shells differ in their proportion of ordinary oxygen (oxygen-16) and the heavy oxygen isotope (oxygen-18). The ratio of oxygen-16 to oxygen-18 found in the calcite of a foraminifer's shell depends on the temperature of the water in which the organism lived. Different ratios in the shells preserved in various layers of sediment reveal the temperature changes in the oceans during the Pleistocene epoch.

Isotopic analysis of shells allowed geologists to measure another glacial effect. They could trace the growth and shrinkage of continental glaciers, even in parts of the ocean where there may have been no great change in temperature—around the equator, for example. The oxygen isotope ratio of the ocean changes as a great deal of water is withdrawn from it by evaporation and is precipitated as snow to form glacial ice. During glaciations, the lighter oxygen-16 has a greater tendency to evaporate from the ocean surface than the heavier oxygen-18 does. Thus, more of the heavy isotope is left behind in the ocean and absorbed by marine organisms. From this analysis of marine sediments, geologists have learned that there were many shorter, more regular cycles of glaciation and deglaciation than geologists had recognized from the glacial drift of the continents alone.

Paragraph 1: In the middle of the nineteenth century, Louis Agassiz, one of the first scientists to study glaciers,

immigrated to the United States from Switzerland and became a professor at Harvard University, where he continued his studies in geology and other sciences. For his research, Agassiz visited many places in the northern parts of Europe and North America, from the mountains of Scandinavia and New England to the rolling hills of the American Midwest. In all these diverse regions, Agassiz saw signs of glacial erosion and sedimentation. In flat plains country, he saw moraines (accumulations of earth and loose rock that form at the edges of glaciers) that reminded him of the terminal moraines found at the end of valley glaciers in the Alps. The heterogeneous material of the drift (sand, clay, and rocks deposited there) convinced him of its glacial origin.

1. The word “accumulations” in the passage is closest in meaning to
 - signs
 - pieces
 - types
 - deposits
2. The word “heterogeneous” in the passage is closest in meaning to
 - remaining
 - varied
 - familiar
 - layered
3. According to paragraph 1, what persuaded Louis Agassiz that glaciation in the past had been widespread?
 - Geologic differences between mountain valleys and flat plains
 - The presence of similar glacial material in many different regions
 - Geologic research on mountain glaciers in the Alps
 - Evidence of regional differences in the drift caused by glacial erosion

Paragraph 2: The areas covered by this material were so vast that the ice that deposited it must have been a continental glacier larger than Greenland or Antarctica. Eventually, Agassiz and others convinced geologists and the general public that a great continental glaciation had extended the polar ice caps far into regions that now enjoy temperate climates. For the first time, people began to talk about ice ages. It was also apparent that the glaciation occurred in the relatively recent past because the drift was soft, like freshly deposited sediment. We now know the age of the glaciation accurately from radiometric dating of the carbon-14 in logs buried in the drift. The drift of the last glaciation was deposited during one of the most recent epochs of geologic time, the Pleistocene, which lasted from 1.8 million to 10,000 years ago. Along the east coast of the United States, the southernmost advance of this ice is recorded by the enormous sand and drift deposits of the terminal moraines that form Long Island and Cape Cod.

4. The word “enjoy” in the passage is closest in meaning to
 - experience
 - resemble
 - expect
 - dominate
5. It can be inferred from paragraph 2 that Agassiz and other geologists of his time were not able to determine
 - which geographic regions had been covered with ice sheets in the last ice age
 - the exact dates at which drifts had been deposited during the last ice age
 - the exact composition of the drifts laid during the last ice age
 - how far south along the east coast of the United States the ice had advanced during the last ice age

Paragraph 3: It soon became clear that there were multiple glacial ages during the Pleistocene, with warmer interglacial intervals between them. As geologists mapped glacial deposits in the late nineteenth century, they became aware that there were several layers of drift, the lower ones corresponding to earlier ice ages. Between the older layers of glacial material were well-developed soils containing fossils of warm-climate plants. These soils were evidence that the glaciers retreated as the climate warmed. By the early part of the twentieth century, scientists believed that four distinct glaciations had affected North America and Europe during the Pleistocene epoch.

6. According to paragraph 3, what did geologists conclude as a result of finding well-developed soils containing warm-climate plant fossils between layers of glacial drift?
- ☐ There had been only one warm period before the Pleistocene epoch.
 - ☐ There had been multiple periods of mild weather between ice ages.
 - ☐ Several glacial periods occurred after the Pleistocene epoch.
 - ☐ Some earlier epochs were warmer than the Pleistocene.

Paragraph 4: This idea was modified in the late twentieth century, when geologists and oceanographers examining oceanic sediment found fossil evidence of warming and cooling of the oceans. Ocean sediments presented a much more complete geologic record of the Pleistocene than continental glacial deposits did. The fossils buried in Pleistocene and earlier ocean sediments were of foraminifera—small, single-celled marine organisms that secrete shells of calcium carbonate, or calcite. These shells differ in their proportion of ordinary oxygen (oxygen-16) and the heavy oxygen isotope (oxygen-18). The ratio of oxygen-16 to oxygen-18 found in the calcite of a foraminifer's shell depends on the temperature of the water in which the organism lived. Different ratios in the shells preserved in various layers of sediment **reveal** the temperature changes in the oceans during the Pleistocene epoch.

7. According to paragraph 3 and 4, scientists modified their theory about the exact number of glaciations because of evidence obtained from
- ☐ Ocean sediments
 - ☐ Interglacial soils
 - ☐ Glacial deposits
 - ☐ Air samples
8. The word “**reveal**” in the passage is closest in meaning to
- ☐ result from
 - ☐ vary with
 - ☐ show
 - ☐ preserve
9. According to paragraph 4, scientists use foraminifera shells to learn about Pleistocene ocean conditions by
- ☐ measuring the amount of calcium carbonate present in the shells
 - ☐ determining the proportion of shell in each layer of sediment
 - ☐ comparing shells deposited during the Pleistocene with those buried earlier
 - ☐ calculating the relative quantity of two oxygen isotopes in the calcite

Paragraph 5: Isotopic analysis of shells allowed geologists to measure another glacial effect. They could trace the growth and shrinkage of continental glaciers, even in parts of the ocean where there may have been no great change in temperature—around the equator, for example. The **oxygen isotope ratio of the ocean changes as a great deal of water is withdrawn from it by evaporation and is precipitated as snow to form glacial ice**. During glaciations, the lighter oxygen-16 has a greater tendency to evaporate from the ocean surface than the heavier oxygen-18 does. Thus, more of the heavy isotope is left behind in the ocean and absorbed by marine organisms. From this analysis of marine

sediments, geologists have learned that there were many shorter, more regular cycles of glaciation and deglaciation than geologists had recognized from the glacial drift of the continents alone.

10. It can be inferred from paragraph 5 that foraminifera fossil shells containing calcite with high percentages of oxygen-16 were deposited at times when
- ☐ polar ice extended as far as equatorial regions of land and sea
 - ☐ extensive glaciation was not occurring
 - ☐ there were no great increases in ocean temperature
 - ☐ there was heavy snowfall on continental glaciers
11. In paragraph 5, why does the author include the information that the “oxygen isotope ratio of the ocean changes as a great deal of water is withdrawn from it by evaporation and is precipitated as snow to form glacial ice” ?
- ☐ To explain how scientists were able to calculate how frequently the continental ice sheets expanded and contracted
 - ☐ To explain how scientists have determined that there was no great change in ocean temperatures at the equator during past glaciations
 - ☐ To provide evidence that oxygen-16 has a greater tendency to evaporate than does oxygen-18
 - ☐ To suggest that equatorial marine organisms absorb more heavy isotopes than do marine organisms elsewhere
12. According to the passage, when did scientists begin to realize that more than one ice age had occurred ?
- ☐ In the mid nineteenth century
 - ☐ In the late nineteenth century
 - ☐ In the early twentieth century
 - ☐ In the late twentieth century

Paragraph 1: In the middle of the nineteenth century, Louis Agassiz, one of the first scientists to study glaciers, immigrated to the United States from Switzerland and became a professor at Harvard University, where he continued his studies in geology and other sciences. For his research, Agassiz visited many places in the northern parts of Europe and North America, from the mountains of Scandinavia and New England to the rolling hills of the American Midwest. ■ In all these diverse regions, Agassiz saw signs of glacial erosion and sedimentation. ■ In flat plains country, he saw moraines (accumulations of earth and loose rock that form at the edges of glaciers) that reminded him of the terminal moraines found at the end of valley glaciers in the Alps. ■ The heterogeneous material of the drift (sand, clay, and rocks deposited there) convinced him of its glacial origin. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

In his view, there could be no other explanation for the composition of such drift.

Where would the sentence best fit ?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Louis Agassiz was the first to note signs of glacial erosion and sedimentation in diverse regions of Europe and North America.

- ☐
- ☐
- ☐

Answer Choices

- Evidence of a pattern of glacier-like deposits eventually convinced most geologists that an enormous continental glacier had extended into the temperate zone.
- Glacial research showed that many layers of ice were deposited, with each new period of glaciation extending farther south than the one before.
- Isotopic analysis of marine sediments showed that periods of glaciation and deglaciation were more frequent, shorter, and more cyclic than previously thought.
- Nineteenth-century geologists came to accept the idea that the areas covered by polar ice had reached as far as the equator, a far larger area than Agassiz had thought.
- Nineteenth-century geologists studying the layers of drift concluded that during the Pleistocene epoch, several glaciations had occurred with warm periods between them.
- Research involving foraminifera fossil shells show that ocean temperatures in the Northern Hemisphere varied greatly during the most extensive periods of glaciation.

参考答案:

1. D
2. B
3. B
4. A
5. B
6. B
7. A
8. C
9. D
10. B
11. A
12. B
13. 4th square
14. Evidence of a ...
Nineteenth-century geologists studying...
Isotopic analysis of...

发现冰河时代

在十九世纪中期，第一个研究冰川的科学家路易斯·阿加西从瑞士移民到美国成为了哈佛大学的一位教授，在那里他开始研究地质及相关科学。从他的研究看，他访问了欧洲和美国北部的很多地方，从斯堪的纳维亚，新英格兰翻山越岭到达了美国中西部。在所有这些不同的地区里阿加西看到了冰川融化和沉降的痕迹。在平原国家他看见了冰碛石（冰川边缘松散的土壤和岩石的聚集体），这些东西让他想起了在阿尔卑斯山谷冰川里发现的终碛石。这些不均匀的冰碛物质（沙子，泥土和沉积的石头）使他对冰川起源产生兴趣。

这些碛石覆盖的区域是如此之大以至于那些使它们沉积下来的冰川几乎是比格林兰或者南极还要大的大型冰川。最终阿加西和他的支持者说服了地质学家和公众相信大型冰川已经从极地冰盖延伸到那些现在气温温和的地区。人们第一次开始讨论冰河时代这样一类问题。很明显冰川作用就发生在最近，因为漂流运动很温和，只有新形成的沉积物。我们知道冰川年龄的准确判断依靠冰块中的碳十四的同位素鉴定。上次冰川的漂流沉积作用发生在最近的几个地质代之一——更新世，从**180** 万年到 **1** 万年前。沿着美国东海岸，最南边的冰川运动被来自长岛和科德角的大量的沙子和终碛石沉积物所记录下来。

很快我们就知道了在更新代有多个冰川代，这中间有几个间冰期和间歇期存在。在十九世纪地质学家对这些冰川沉降进行定位的时候，他们意识到有好几个漂流层在其中，浅一些的冰层对应的是更近一些的冰河时代。在这些年代更久远的冰层里有永冻土，其中包含了温带植物的化石。这些土壤表明冰川在温带来临之后就消失了。到了二十世纪初期，科学家们相信更新世中有四个不同的冰川代影响着北美和欧洲。

当地质学家和海洋学家研究海洋沉积发现海洋变暖和变冷的化石证据时，这种观点得到了修正。海洋沉积呈现出一种比更新世大型冰川沉积更完整的地质记录。这些沉积在更新世的化石和更早的海洋沉积物是有孔虫及分泌碳酸钙壳和方解石壳的单细胞有机物的产物。这些在有孔虫上的壳状物在方解石氧 **16** 的含量上不同，而含量决定于有机物生存环境下水的温度。不同的沉积层中的壳有不同的含量，这显示出更新代海洋温度的变化。

对壳的同位素分析使得地质学家能够测量一些其他的冰川影响，他们能够追踪大型冰川的萎缩和生长，即使是那些海洋中温度变化不太大的区域，比如说赤道附近。海洋中氧的同位素比率会在大量的水蒸发掉或凝结成为冰川时发生变化。在冰川作用时期轻一些的氧 **16** 比重一些的氧 **18** 更容易从海洋的表面蒸发。这样，更多的重的氧的同位素留在了海洋里并被有机物吸收。从这些海洋沉积物的分析来看，海洋地质学家比那些只从大型冰川漂移中分析冰川运动的地质学家了解到了更短更规则循环的冰川化和去冰川化过程。

Westward Migration

The story of the westward movement of population in the United States is, in the main, the story of the expansion of American agriculture—of the development of new areas for the raising of livestock and the cultivation of wheat, corn, tobacco, and cotton. After 1815 improved transportation enabled more and more western farmers to escape a self-sufficient way of life and enter a national market economy. During periods when commodity prices were high, the rate of westward migration increased spectacularly. "Old America seemed to be breaking up and moving westward," observed an English visitor in 1817, during the first great wave of migration. Emigration to the West reached a peak in the 1830's. Whereas in 1810 only a seventh of the American people lived west of the Appalachian Mountains, by 1840 more than a third lived there.

Why were these hundreds of thousands of settlers—most of them farmers, some of them artisans—drawn away from the cleared fields and established cities and villages of the East? Certain characteristics of American society help to explain this remarkable migration. The European ancestors of some Americans had for centuries lived rooted to the same village or piece of land until some religious, political, or economic crisis uprooted them and drove them across the Atlantic. Many of those who experienced this sharp break thereafter lacked the ties that had bound them and their ancestors to a single place. Moreover, European society was relatively stratified; occupation and social status were inherited. In American society, however, the class structure was less rigid; some people changed occupations easily and believed it was their duty to improve their social and economic position. As a result, many Americans were an inveterately restless, rootless, and ambitious people. Therefore, these social traits helped to produce the nomadic and daring settlers who kept pushing westward beyond the fringes of settlement. In addition, there were other immigrants who migrated west in search of new homes, material success, and better lives.

The West had plenty of attractions: the alluvial river bottoms, the fecund soils of the rolling forest lands, the black loams of the prairies were tempting to New England farmers working their rocky, sterile land and to southeastern farmers plagued with soil depletion and erosion. In 1820 under a new land law, a farm could be bought for \$100. The continued proliferation of banks made it easier for those without cash to negotiate loans in paper money. Western Farmers borrowed with the confident expectation that the expanding economy would keep farm prices high, thus making it easy to repay loans when they fell due.

Transportation was becoming less of a problem for those who wished to move west and for those who hand farm surpluses to send to market. Prior to 1815, western farmers who did not live on navigable waterways were connected to them only by dirt roads and mountain trails. Livestock could be driven across the mountains, but the cost of transporting bulky grains in this fashion was several times greater than their value in eastern markets. The first step toward an improvement of western transportation was the construction of turnpikes. These roads made possible a reduction in transportation costs and thus stimulated the commercialization of agriculture along their routes.

Two other developments presaged the end of the era of turnpikes and started a transportation revolution that resulted in increased regional specialization and the growth of a national market economy. First came the steamboat; although flatboats and keelboats continued to be important until the 1850's steamboats eventually

superseded all other craft in the carrying of passengers and freight. Steamboats were not only faster but also transported upriver freight for about one tenth of what it had previously cost on hand-propelled keelboats. Next came the Erie Canal, an enormous project in its day, spanning about 350 miles. After the canal went into operation, the cost per mile of transporting a ton of freight from Buffalo to New York City declined from nearly 20 cents to less than 1 cent. Eventually, the western states diverted much of their produce from the rivers to the Erie Canal, a shorter route to eastern markets.

Paragraph 1: The story of the westward movement of population in the United States is, in the main, the story of the expansion of American agriculture—of the development of new areas for the raising of livestock and the cultivation of wheat, corn, tobacco, and cotton. After 1815 improved transportation enabled more and more western farmers to escape a self-sufficient way of life and enter a national market economy. During periods when commodity prices were high, the rate of westward migration increased spectacularly. "Old America seemed to be breaking up and moving westward," observed an English visitor in 1817, during the first great wave of migration. Emigration to the West reached a peak in the 1830's. Whereas in 1810 only a seventh of the American people lived west of the Appalachian Mountains, by 1840 more than a third lived there.

1. What can be inferred from paragraph 1 about western farmers prior to 1815?
 - ☐ They had limited their crop production to wheat, corn, tobacco, and cotton.
 - ☐ They were able to sell their produce at high prices.
 - ☐ They had not been successful in raising cattle.
 - ☐ They did not operate in a national market economy.
2. What is the purpose of the statement, "Whereas in 1810 only a seventh of the American people lived west of the Appalachian Mountains, by 1840 more than a third lived there"?
 - ☐ To illustrate that generally population shifts occur rapidly
 - ☐ To correct a mistaken impression of American agriculture from 1810 to 1840
 - ☐ To emphasize the range and speed with which the westward migration occurred
 - ☐ To demonstrate how attractive the Appalachian Mountains were to Americans

Paragraph 2: Why were these hundreds of thousands of settlers—most of them farmers, some of them artisans—drawn away from the cleared fields and established cities and villages of the East? Certain characteristics of American society help to explain this remarkable migration. The European ancestors of some Americans had for centuries lived rooted to the same village or piece of land until some religious, political, or economic crisis uprooted them and drove them across the Atlantic. Many of those who experienced this sharp break thereafter lacked the ties that had bound them and their ancestors to a single place. Moreover, European society was relatively stratified; occupation and social status were inherited. In American society, however, the class structure was less rigid; some people changed occupations easily and believed it was their duty to improve their social and economic position. As a result, many Americans were an inveterately restless, rootless, and ambitious people. Therefore, these social traits helped to produce the nomadic and daring settlers who kept pushing westward beyond the fringes of settlement. In addition, there were other immigrants who migrated west in search of new homes, material success, and better lives.

3. The word "fringes" in the passage is closest in meaning to
 - ☐ borders
 - ☐ groups
 - ☐ types

O directions

4. According to paragraph 2, all of the following are reasons why Americans migrated westward EXCEPT
- O the desire to move from one place to the next
 - O the hope of improving their socioeconomic status
 - O the opportunity to change jobs
 - O the need to escape religious or political crises

Paragraph 3: The West had plenty of attractions: the alluvial river bottoms, the fecund soils of the rolling forest lands, the black loams of the prairies were tempting to New England farmers working their rocky, sterile land and to southeastern farmers plagued with soil depletion and erosion. In 1820 under a new land law, a farm could be bought for \$100. The continued proliferation of banks made it easier for those without cash to negotiate loans in paper money. Western Farmers borrowed with the confident expectation that the expanding economy would keep farm prices high, thus making it easy to repay loans when they fell due.

5. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
- O Because the West had more rivers and forests than the East, its soil was more productive.
 - O The fertile soils of the West drew farmers from regions with barren soils.
 - O Farmers living in western areas of the United States were more affected by soil erosion than farmers living in eastern areas.
 - O The soil in western areas of the United States was richer than soil in eastern areas.
6. According to paragraph 3, what was the significance of the land law passed in 1820?
- O It granted government-supported loans to farmers.
 - O It provided farmland at an affordable price.
 - O It required banks to offer loans to farmers.
 - O It enabled farmers to sell their land for a profit.
7. The word "proliferation" in the passage is closest in meaning to
- O growth
 - O cooperation
 - O importance
 - O success

Paragraph 4: Transportation was becoming less of a problem for those who wished to move west and for those who hand farm surpluses to send to market. Prior to 1815, western farmers who did not live on navigable waterways were connected to them only by dirt roads and mountain trails. Livestock could be driven across the mountains, but the cost of transporting bulky grains in this fashion was several times greater than their value in eastern markets. The first step toward an improvement of western transportation was the construction of turnpikes. These roads made possible a reduction in transportation costs and thus stimulated the commercialization of agriculture along their routes.

8. Paragraph 4 suggests that turnpikes affected farmers by
- O making the price of grain uniform for both eastern and western farmers
 - O making western farm products more profitable than eastern farm products
 - O allowing farmers to drive their livestock across mountain trails
 - O allowing a greater number of farmers to sell their farm products in a commercial market

Paragraph 5: Two other developments presaged the end of the era of turnpikes and started a transportation revolution that resulted in increased regional specialization and the growth of a national market economy. First came the steamboat; although flatboats and keelboats continued to be important until the 1850's steamboats eventually superseded all other craft in the carrying of passengers and freight. Steamboats were not only faster but also transported upriver freight for about one tenth of what it had previously cost on hand-propelled keelboats. Next came the Erie Canal, an enormous project in its day, spanning about 350 miles. After the canal went into operation, the cost per mile of transporting a ton of freight from Buffalo to New York City declined from nearly 20 cents to less than 1 cent. Eventually, the western states diverted much of their produce from the rivers to the Erie Canal, a shorter route to eastern markets.

9. The word "superseded" in the passage is closest in meaning to
- ☐ replaced
 - ☐ reformed
 - ☐ equaled
 - ☐ increased
10. The word "diverted" in the passage is closest in meaning to
- ☐ collected
 - ☐ shifted
 - ☐ transported
 - ☐ sold
11. Which of the following can be inferred from paragraph 5 about flatboats and keelboats?
- ☐ They ceased to be used as soon as the first turnpikes were built.
 - ☐ They were slower and more expensive to operate than steamboats.
 - ☐ They were used for long-distance but not for regional transportation.
 - ☐ They were used primarily on the Erie Canal.
12. Paragraph 5 mentions that the Erie Canal led to a reduction in all of the following EXCEPT
- ☐ the length of the route that goods from the West traveled across to reach eastern markets
 - ☐ the cost of transporting freight
 - ☐ the price of produce from western states
 - ☐ the amount of produce from western states that was shipped on rivers

Transportation was becoming less of a problem for those who wished to move west and for those who had farm surpluses to send to market. ■ Prior to 1815, western farmers who did not live on navigable waterways were connected to them only by dirt roads and mountain trails. ■ Livestock could be driven across the mountains, but the cost of transporting bulky grains in this fashion was several times greater than their value in eastern markets. ■ The first step toward an improvement of western transportation was the construction of turnpikes. ■ These roads made possible a reduction in transportation costs and thus stimulated the commercialization of agriculture along their routes.

13. Look at the four squares [■] that indicate where the following sentence can be added to the passage.
- In fact, goods could be shipped more cheaply across the much greater distance of the Atlantic Ocean than they could from western New York to coastal cities.**

Where would the sentence best fit?

Click on a square [■] to insert the sentence in the passage.

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the

summary by selecting the THREE answer choices that express the most important ideas in the passage. Some answer choices do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

The westward movement of population across the United States led to expanded agricultural production.

- ☐
- ☐
- ☐

Answer Choices

- ☐ The desire to improve their livelihood often inspired people to move west.
- ☐ Among the people who moved to the western United States were a number of artisans.
- ☐ The fertility of western farmland as well as favorable government policies supported agricultural gains.
- ☐ Steamboats were originally used to transport passengers rather than freight.
- ☐ Commercial farming in the West was greatly enhanced by improvements in land and water transportation.
- ☐ The transportation revolution resulted in regional economies that operated independently of a national market economy.

参考答案:

1. D
2. C
3. A
4. D
5. B
6. B
7. A
8. D
9. A
10. B
11. B
12. C
13. C
14. The desire to ...
The fertility of...
Commercial farming...

移居西部

美国西进运动大体说来其实就是美国农业扩张的故事，也就是一场开辟用于饲养家畜以及种植小麦、玉米、烟草和棉花的新土地的运动。**1815**年之后，交通的改善使得越来越多的西部农民摆脱了自给自足的生活方式，进入了国家市场经济。在商品价格较高的那些年，西迁的比率飞速增长。一名英国游客于**1817**年评价道：“看来旧美国正在瓦解，并移向西部”，当时正值第一波大规模的移民。向西移民在**1830**年达到了顶峰。**1810**年的时候，还仅有七分之一的美国人生活在阿巴拉契亚山的西侧，到**1840**年的时候这个数字超过了三分之一。

为什么这几十万的移民——大部分是农民，还有些是工匠，会离开东部开垦好的土地和建设好的城镇？美国社会的某些特质有助于解释这场声势浩大的移民。一些美国人的欧洲祖先几个世纪以来都扎根于同一个村庄或者同一片土地，直到出现了宗教、政治或者经济危机才迫使他们离开故土，穿越大西洋。经历过这场巨变的很多人都失去了会把他们和他们的祖先束缚在一个地方的纽带。而且，欧洲社会相对阶层化，职业和社会地位是世袭的。而在美国社会，等级结构没有这么严格，一部分人轻易就换了工作，并且他们相信他们应该去提高自己的社会地位和经济地位。这就导致很多美国人骨子里就是不安于现状、无根而且野心勃勃的人。因此这些社会特征有利于造就出那些会一直深入到比定居点更遥远的西部的游牧民和大胆的移民。此外，还有一些移民迁到西部是为了找寻新的家园，获得物质上的成功，过上更好的生活。

西部吸引人的地方很多：冲积河床、绵延起伏的林地下肥沃的土壤、大草原上的黑土都吸引着在布满岩石又贫瘠的土地上劳作的新英格兰农民和饱受土壤土壤损耗和流失困扰的东南部农民。根据**1820**年的一部新土地法，**100**美元就可以买一个农场。银行的不断发展使得那些没有现金的人贷款变得更容易了。西部的农民在贷款的时候都满怀信心，他们预期经济的发展会使农场的价格节节攀升，因此到期时要偿还贷款就比较容易。

交通对于那些想要迁往西部的人以及手里有多余的农产品可以供给市场的人也已经不成问题。**1815**年前，那些没有生活在通航的水路旁的西部农民只能从土路 and 山道去往市场。可以用家畜翻越大山，但是以这种方式运输谷物的成本是这些谷物在东部市场上的价值的好几倍。改善西部交通的第一步就是修建高速公路。这些公路使得运输成本有降低的可能，并且因此刺激了沿途农业的商品化。

还有两个发展预示着高速公路时代的终结，并引发了一场运输革命，使得生产日益地区专业化，国家市场经济持续增长。第一个是蒸汽船，虽然在**1850**年蒸汽船最终取代了所有其它的船来运输乘客和货物之前，平底船和龙骨船一直是相当重要的交通工具。蒸汽船不仅快，而且向上游运输货物的成本约是先前用手划龙骨船的十分之一。第二个就是伊利运河，它在当时是一项庞大的工程，跨越了约**350**英里。运河开始运营后，从水牛城向纽约运输一吨货物每英里的成本从**20**美分下降到了不到**1**美分。最终，西部的各州都将不少农产品从以往的水路转到了伊利运河这条通往东部市场的捷径。

Early Settlements in the Southwest Asia

The universal global warming at the end of the Ice Age had dramatic effects on temperate regions of Asia, Europe, and North America. Ice sheets retreated and sea levels rose. The climatic changes in southwestern Asia were more subtle, in that they involved shifts in mountain snow lines, rainfall patterns, and vegetation cover. However, these same cycles of change had momentous impacts on the sparse human populations of the region. At the end of the Ice Age, no more than a few thousand foragers lived along the eastern Mediterranean coast, in the Jordan and Euphrates valleys. Within 2,000 years, the human population of the region numbered in the tens of thousands, all as a result of village life and farming. Thanks to new environmental and archaeological discoveries, we now know something about this remarkable change in local life.

Pollen samples from freshwater lakes in Syria and elsewhere tell us forest cover expanded rapidly at the end of the Ice Age, for the southwestern Asian climate was still cooler and considerably wetter than today. Many areas were richer in animal and plant species than they are now, making them highly favorable for human occupation. About 9000 B.C., most human settlements lay in the area along the Mediterranean coast and in the Zagros Mountains of Iran and their foothills. Some local areas, like the Jordan River valley, the middle Euphrates valley, and some Zagros valleys, were more densely populated than elsewhere. Here more sedentary and more complex societies flourished. These people exploited the landscape intensively, foraging on hill slopes for wild cereal grasses and nuts, while hunting gazelle and other game on grassy lowlands and in river valleys. Their settlements contain exotic objects such as seashells, stone bowls, and artifacts made of obsidian (volcanic glass), all traded from afar. This considerable volume of intercommunity exchange brought a degree of social complexity in its wake.

Thanks to extremely fine-grained excavation and extensive use of flotation methods (through which seeds are recovered from soil samples), we know a great deal about the foraging practices of the inhabitants of Abu Hureyra in Syria's Euphrates valley. Abu Hureyra was founded about 9500B.C, a small village settlement of cramped pit dwellings (houses dug partially in the soil) with reed roofs supported by wooden uprights. For the next 1,500 years, its inhabitants enjoyed a somewhat warmer and damper climate than today, living in a well-wooded steppe area where wild cereal grasses were abundant. They subsisted off spring migrations of Persian gazelles from the south. With such a favorable location, about 300 to 400 people lived in a sizable, permanent settlement. They were no longer a series of small bands but lived in a large community with more elaborate social organization, probably grouped into clans of people of common descent.

The flotation samples from the excavations allowed botanists to study shifts in plant-collecting habits as if they were looking through a telescope at a changing landscape. Hundreds of tiny plant remains show how the inhabitants exploited nut harvests in nearby pistachio and oak forests. However, as the climate dried up, the forests retreated from the vicinity of the settlement. The inhabitants turned to wild cereal grasses instead, collecting them by the thousands, while the percentage of nuts in the diet fell. By 8200B.C., drought conditions were so severe that the people abandoned their long-established settlement, perhaps dispersing into smaller camps.

Five centuries later, about 7700B.C., a new village rose on the mound. At first the inhabitants still hunted gazelle intensively. Then, about 7000 B.C., within the space of a few generations, they switched abruptly to herding domesticated goats and sheep and to growing einkorn, pulses, and other cereal grasses. Abu Hureyra grew rapidly until it covered nearly 30 acres. It was a close-knit community of rectangular, one-story mud-brick houses, joined by narrow lanes and courtyards, finally abandoned about 5000 B.C.. Many complex factors led to the adoption of the new economies, not only at Abu Hureyra, but at many other locations such as 'Ain Ghazal, also in Syria, where goat toe bones showing the telltale marks of abrasion caused by foot tethering (binding) testify to early herding of domestic

stock.

Paragraph 1: The universal global warming at the end of the Ice Age had dramatic effects on temperate regions of Asia, Europe, and North America. Ice sheets retreated and sea levels rose. The climatic changes in southwestern Asia were more subtle, in that they involved shifts in mountain snow lines, rainfall patterns, and vegetation cover. However, these same cycles of change had **momentous** impacts on the sparse human populations of the region. At the end of the Ice Age, no more than a few thousand foragers lived along the eastern Mediterranean coast, in the Jordan and Euphrates valleys. Within 2,000 years, the human population of the region numbered in the tens of thousands, all as a result of village life and farming. Thanks to new environmental and archaeological discoveries, we now know something about **this remarkable change** in local life.

1. The word "**momentous**" in the passage is closest in meaning to
 - ☐ numerous
 - ☐ regular
 - ☐ very important
 - ☐ very positive
2. Major climatic changes occurred by the end of the Ice Age in all of the following geographic areas EXCEPT
 - ☐ temperate regions of Asia
 - ☐ southwestern Asia
 - ☐ North America
 - ☐ Europe
3. The phrase "**this remarkable change**" in the passage refers to
 - ☐ warming at the end of the Ice Age
 - ☐ shifts in mountain snow lines
 - ☐ the movement of people from farms to villages
 - ☐ a dramatic increase in the population

Paragraph 2: Pollen samples from freshwater lakes in Syria and elsewhere tell us forest cover expanded rapidly at the end of the Ice Age, for the southwestern Asian climate was still cooler and considerably wetter than today. Many areas were richer in animal and plant species than they are now, making them highly favorable for human occupation. About 9000 B.C., most human settlements lay in the area along the Mediterranean coast and in the Zagros Mountains of Iran and their foothills. Some local areas, like the Jordan River valley, the middle Euphrates valley, and some Zagros valleys, were more densely populated than elsewhere. Here more sedentary and more complex societies flourished. These people **exploited** the landscape intensively, foraging on hill slopes for wild cereal grasses and nuts, while hunting gazelle and other game on grassy lowlands and in river valleys. Their settlements contain exotic objects such as **seashells, stone bowls, and artifacts made of obsidian** (volcanic glass), all traded from afar. This considerable volume of intercommunity exchange brought a degree of social complexity in its wake.

4. The word "**exploited**" in the passage is closest in meaning to
 - ☐ explored
 - ☐ utilized
 - ☐ inhabited
 - ☐ improved

5. Why does the author mention "seashells, stone bowls, and artifacts made of obsidian"?

- ☐ To give examples of objects obtained through trade with other societies
- ☐ To illustrate the kinds of objects that are preserved in a cool climate
- ☐ To provide evidence that the organization of work was specialized
- ☐ To give examples of the artistic ability of local populations

Paragraph 3: Thanks to extremely fine-grained excavation and extensive use of flotation methods (through which seeds are recovered from soil samples), we know a great deal about the foraging practices of the inhabitants of Abu Hureyra in Syria's Euphrates valley. Abu Hureyra was founded about 9500B.C, a small village settlement of cramped pit dwellings (houses dug partially in the soil) with reed roofs supported by wooden uprights. For the next 1,500 years, its inhabitants enjoyed a somewhat warmer and damper climate than today, living in a well-wooded steppe area where wild cereal grasses were abundant. They subsisted off spring migrations of Persian gazelles from the south. With such a favorable location, about 300 to 400 people lived in a sizable, permanent settlement. They were no longer a series of small bands but lived in a large community with more elaborate social organization, probably grouped into clans of people of common descent.

6. The word "cramped" in the passage is closest in meaning to

- ☐ primitive
- ☐ secure
- ☐ extended
- ☐ confined

7. Paragraph 3 suggests which of the following about the settlement of Abu Hureyra?

- ☐ The settlement was inhabited by small groups of people from nearby areas.
- ☐ Small bands of people migrated in and out of the settlement.
- ☐ The location of the settlement made permanent development difficult.
- ☐ The easy availability of food led to the growth of the settlement.

Paragraph 4: The flotation samples from the excavations allowed botanists to study shifts in plant-collecting habits as if they were looking through a telescope at a changing landscape. Hundreds of tiny plant remains show how the inhabitants exploited nut harvests in nearby pistachio and oak forests. However, as the climate dried up, the forests retreated from the vicinity of the settlement. The inhabitants turned to wild cereal grasses instead, collecting them by the thousands, while the percentage of nuts in the diet fell. By 8200B.C., drought conditions were so severe that the people abandoned their long-established settlement, perhaps dispersing into smaller camps.

8. The word "shifts" in the passage is closest in meaning to

- ☐ effects
- ☐ similarities
- ☐ changes
- ☐ exceptions

9. Paragraph 4 suggests that the people of Abu Hureyra abandoned their long-established settlement because

- ☐ the inhabitants had cleared all the trees from the forests
- ☐ wild cereal grasses took over pistachio and oak forests
- ☐ people wanted to explore new areas
- ☐ lack of rain caused food shortages

Paragraph 5: Five centuries later, about 7700B.C., a new village rose on the mound. At first the inhabitants still hunted gazelle intensively. Then, about 7000 B.C., within the space of a few generations, they switched abruptly to herding domesticated goats and sheep and to growing einkorn, pulses, and other cereal grasses. Abu Hureyra grew rapidly until it covered nearly 30 acres. It was a close-knit community of rectangular, one-story mud-brick houses, joined by narrow lanes and courtyards, finally abandoned about 5000 B.C.. Many complex factors led to the adoption of the new economies, not only at Abu Hureyra, but at many other locations such as 'Ain Ghazal, also in Syria, where goat toe bones showing the telltale marks of abrasion caused by foot tethering (binding) testify to early herding of domestic stock.

10. According to paragraph 5, after 7000 B.C. the settlement of Abu Hureyra differed from earlier settlements at that location in all of the following EXCEPT
- ☐ the domestication of animals
 - ☐ the intensive hunting of gazelle
 - ☐ the size of the settlement
 - ☐ the design of the dwellings
11. The word "abruptly" in the passage is closest in meaning to
- ☐ informally
 - ☐ briefly
 - ☐ suddenly
 - ☐ surprisingly
12. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
- ☐ In many areas besides Abu Hureyra, complex factors led to new economies including the herding of domestic stock.
 - ☐ In 'Ain Ghazal and Syria, domestic stock was more important than it was at Abu Hureyra.
 - ☐ Once early methods of herding animals improved, new economies were adopted.
 - ☐ Many complex theories attempt to explain the early domestication of animals.

The universal global warming at the end of the Ice Age had dramatic effects on temperate regions of Asia, Europe, and North America. Ice sheets retreated and sea levels rose. The climatic changes in southwestern Asia were more subtle, in that they involved shifts in mountain snow lines, rainfall patterns, and vegetation cover. However, these same cycles of change had momentous impacts on the sparse human populations of the region. At the end of the Ice Age, no more than a few thousand foragers lived along the eastern Mediterranean coast, in the Jordan and Euphrates valleys. Within 2,000 years, the human population of the region numbered in the tens of thousands, all as a result of village life and farming. Thanks to new environmental and archaeological discoveries, we now know something about this remarkable change in local life.

13. Look at the four squares [■] that indicate where the following sentence can be added to the passage.

One of the major effects was the rapid growth of the human population itself.

Where would the sentence best fit?

Click on a square [■] to insert the sentence in the passage.

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some answer choices do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. This question is worth 2 points.

At the end of the Ice Age, patterns of human settlement changed in southwestern Asia.

- ☐
- ☐
- ☐

Answer Choices

- ☐ Wild cereals, grasses, and nuts were exchanged for exotic objects.
- ☐ Changes in climatic conditions made southwestern Asia highly beneficial to human occupants.
- ☐ Social organization in Abu Hureyra decreased as the population grew.
- ☐ The favorable location of Abu Hureyra kept the city from experiencing hardship during drought years.
- ☐ Within 2,000 years, populations in southwestern Asia greatly increased in number.
- ☐ In rich, fertile areas permanent societies evolved to a high level of complexity.

参考答案:

1. C
2. B
3. D
4. B
5. A
6. D
7. D
8. C
9. D
10. B
11. C
12. A
13. C
14. Changes in climatic ...
Within 2,000 years...
In rich, fertile...

西南亚的早期定居点

冰河时代末期全球普遍升温，这对亚洲、欧洲和北美洲的温带地区产生了巨大的影响。冰原后退，海平面上升。西南亚气候的变化则更加细微，包括山脉雪线、降水类型和植被覆盖的变化。然而，这些日复一日的周期性的变化对该地区稀少的人类产生了重要的影响。在冰河时代末期，地中海东部沿岸的约旦河和幼发拉底河流域仅生活着数千人。随后的两千年内，农村生活和农业使该地区的人口数量变成了数万人。正是由于在环境和考古学方面的新发现，我们才得以了解当地生活中发生的这种显著变化。

来自叙利亚和其它地方的淡水湖的花粉样本向我们揭示出在冰河时代末期森林覆盖迅速增长，这是因为当时西南亚的气候比现在要更凉爽，而且要湿润得多。当时很多地区的动植物种类要比现在丰富，这就使这些地区非常适宜人类居住。大约在公元前 **9000** 年，大部分人类定居点都位于地中海沿岸以及伊朗的扎格罗斯山脉和丘陵地带。一些区域，例如约旦河谷以及某些扎格罗斯谷地的人口就比别的地方要更加稠密。迁移性更低，更为复杂的社会在这里兴旺发展起来。这些人对周围的环境进行了充分的利用，他们在山坡上采集野生的谷物和坚果，在长满青草的低地和河谷中捕捉瞪羚及其它猎物。在他们的定居点发现了从远方交易获得的外来物品，例如贝壳、石碗和黑曜石（火山玻璃）制成的人造器物。这种数量可观的社会间的交换给这些社会带来了一定的复杂度。

极精细的挖掘和浮选法（可以从土壤样本中发现种子）的广泛使用使得我们对叙利亚境内的幼发拉底河流域阿布胡赖拉的居民的觅食习惯有了深入的了解。阿布胡赖拉是建于公元前 **9500** 年的一座小村庄，村庄里都是狭小的洞穴房（房子的一部分是挖到地下的），芦苇做的屋顶是用木头柱子支起来的。随后的 **1500** 年，该地的居民享受着比我们现在略为温暖潮湿的气候，他们居住在树木繁茂的大草原，那里生长着大量的野生谷类植物。他们喂养着从南部地区迁移而来的波斯瞪羚的后代。在这个地理位置绝佳的地方，每 **300** 到 **400** 人会生活在一起，形成一个比较大的永久定居点。他们从小群体走向了具有更加复杂的社会组织的大群体，很有可能是按照共同祖先划分的部族。

从挖掘物中获取的浮选样本使得植物学家可以研究他们采集植物习性的变化，就像是通过望远镜观看变化的景致。许多细小的植物遗体显示了这些居民是如何采集附近森林里的开心果和橡子的。然而，随着气候变得越来越干燥，森林从定居点的附近向后退缩。居民就转而采集大量的野生谷物，他们饮食中的坚果比例随之减小。到公元前 **8200** 年的时候，干旱已经很严重了，他们放弃了居住已久的定居点，可能是散居到更小的茅屋中去了。

五个世纪以后，大约是公元前 **7700** 年，高地上出现了一个新的村庄。最初那里的居民仍然集中于猎取瞪羚。后来大约在公元前 **7000** 年左右，没过几代，这些居民就忽然转向饲养家养的山羊和绵羊，并种植一粒小麦、豆类及其它谷类植物。阿布胡赖拉迅速壮大，最终大约扩张到了近 **30** 英亩。它是一座结构紧凑的矩形村庄，单层的泥砖房屋与狭窄的小道和院子相连，这座村庄最终于公元前 **5000** 年被废弃。有很多复杂的因素导致人们采用新的经济形式，这不只是发生在阿布胡赖拉，在其它很多地方例如在艾因加扎勒和叙利亚发现的山羊的趾骨上就有显示是由足部被栓（绑）造成的磨损的迹象，这就证明该地出现了早期的放牧。

Fossil Preservation

When one considers the many ways by which organisms are completely destroyed after death, it is remarkable that fossils are as common as they are. Attack by scavengers and bacteria, chemical decay, and destruction by erosion and other geologic agencies make the odds against preservation very high. However, the chances of escaping complete destruction are vastly improved if the organism happens to have a mineralized skeleton and dies in a place where it can be quickly buried by sediment. Both of these conditions are often found on the ocean floors, where shelled invertebrates (organisms without spines) flourish and are covered by the continuous rain of sedimentary particles. Although most fossils are found in marine sedimentary rocks, they also are found in terrestrial deposits left by streams and lakes. On occasion, animals and plants have been preserved after becoming immersed in tar or quicksand, trapped in ice or lava flows, or engulfed by rapid falls of volcanic ash.

The term "fossil" often implies petrification, literally a transformation into stone. After the death of an organism, the soft tissue is ordinarily consumed by scavengers and bacteria. The empty shell of a snail or clam may be left behind, and if it is sufficiently durable and resistant to dissolution, it may remain basically unchanged for a long period of time. Indeed, unaltered shells of marine invertebrates are known from deposits over 100 million years old. In many marine creatures, however, the skeleton is composed of a mineral variety of calcium carbonate called aragonite. Although aragonite has the same composition as the more familiar mineral known as calcite, it has a different crystal form, is relatively unstable, and in time changes to the more stable calcite.

Many other processes may alter the shell of a clam or snail and enhance its chances for preservation. Water containing dissolved silica, calcium carbonate, or iron may circulate through the enclosing sediment and be deposited in cavities such as marrow cavities and canals in bone once occupied by blood vessels and nerves. In such cases, the original composition of the bone or shell remains, but the fossil is made harder and more durable. This addition of a chemically precipitated substance into pore spaces is termed "permineralization."

Petrification may also involve a simultaneous exchange of the original substance of a dead plant or animal with mineral matter of a different composition. This process is termed "replacement" because solutions have dissolved the original material and replaced it with an equal volume of the new substance. Replacement can be a marvelously precise process, so that details of shell ornamentation, tree rings in wood, and delicate structures in bone are accurately preserved.

Another type of fossilization, known as carbonization, occurs when soft tissues are preserved as thin films of carbon. Leaves and tissue of soft-bodied organisms such as jellyfish or worms may accumulate, become buried and compressed, and lose their volatile constituents. The carbon often remains behind as a blackened silhouette.

Although it is certainly true that the possession of hard parts enhances the prospect of preservation, organisms having soft tissues and organs are also occasionally preserved. Insects and even small invertebrates have been found preserved in the hardened resins of conifers and certain other trees. X-ray examination of thin slabs of rock sometimes reveals the ghostly outlines of tentacles, digestive tracts, and visual organs of a variety of marine creatures. Soft parts, including skin, hair, and viscera of ice age mammoths, have been preserved in frozen soil or in the oozing tar of oil seeps.

The probability that actual remains of soft tissue will be preserved is improved if the organism dies in an environment of rapid deposition and oxygen deprivation. Under such conditions, the destructive effects of bacteria are diminished. The Middle Eocene Messel Shale (from about 48 million years ago) of Germany accumulated in such an

environment. The shale was deposited in an oxygen-deficient lake where lethal gases sometimes bubbled up and killed animals. Their remains accumulated on the floor of the lake and were then covered by clay and silt. Among the superbly preserved Messel fossils are insects with iridescent exoskeletons (hard outer coverings), frogs with skin and blood vessels intact, and even entire small mammals with preserved fur and soft tissue.

Paragraph 1: When one considers the many ways by which organisms are completely destroyed after death, it is remarkable that fossils are as common as they are. Attack by scavengers and bacteria, chemical decay, and destruction by erosion and other geologic agencies make the odds against preservation very high. However, the chances of escaping complete destruction are vastly improved if the organism happens to have a mineralized skeleton and dies in a place where it can be quickly buried by sediment. Both of these conditions are often found on the ocean floors, where shelled invertebrates (organisms without spines) flourish and are covered by the continuous rain of sedimentary particles. Although most fossils are found in marine sedimentary rocks, they also are found in terrestrial deposits left by streams and lakes. On occasion, animals and plants have been preserved after becoming immersed in tar or quicksand, trapped in ice or lava flows, or engulfed by rapid falls of volcanic ash.

1. The word "agencies" in the passage is closest in meaning to
 - ☐ combinations
 - ☐ problems
 - ☐ forces
 - ☐ changes
2. In paragraph 1, what is the author's purpose in providing examples of how organisms are destroyed?
 - ☐ To emphasize how surprising it is that so many fossils exist
 - ☐ To introduce a new geologic theory of fossil preservation
 - ☐ To explain why the fossil record until now has remained incomplete
 - ☐ To compare how fossils form on land and in water
3. The word "terrestrial" in the passage is closest in meaning to
 - ☐ land
 - ☐ protected
 - ☐ alternative
 - ☐ similar

Paragraph 2: The term "fossil" often implies petrification, literally a transformation into stone. After the death of an organism, the soft tissue is ordinarily consumed by scavengers and bacteria. The empty shell of a snail or clam may be left behind, and if it is sufficiently durable and resistant to dissolution, it may remain basically unchanged for a long period of time. Indeed, unaltered shells of marine invertebrates are known from deposits over 100 million years old. In many marine creatures, however, the skeleton is composed of a mineral variety of calcium carbonate called aragonite. Although aragonite has the same composition as the more familiar mineral known as calcite, it has a different crystal form, is relatively unstable, and in time changes to the more stable calcite.

4. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
 - ☐ When snail or clam shells are left behind, they must be empty in order to remain durable and resist dissolution.
 - ☐ Although snail and clam shells are durable and resist dissolving, over time they slowly begin to change.

-
- ☐ Although the soft parts of snails or clams dissolve quickly, their hard shells resist dissolution for a long time.
 - ☐ Empty snail or clam shells that are strong enough not to dissolve may stay in their original state for a long time.

5. Why does the author mention "aragonite" in the passage?

- ☐ To emphasize that some fossils remain unaltered for millions of years
- ☐ To contrast fossil formation in organisms with soft tissue and in organisms with hard shells
- ☐ To explain that some marine organisms must undergo chemical changes in order to fossilize
- ☐ To explain why fossil shells are more likely to survive than are fossil skeletons

Paragraph 3: Many other processes may alter the shell of a clam or snail and enhance its chances for preservation. Water containing dissolved silica, calcium carbonate, or iron may circulate through the enclosing sediment and be deposited in cavities such as marrow cavities and canals in bone once occupied by blood vessels and nerves. In such cases, the original composition of the bone or shell remains, but the fossil is made harder and more durable. This addition of a chemically precipitated substance into pore spaces is termed "permineralization."

6. The word "enhance" in the passage is closest in meaning to

- ☐ control
- ☐ limit
- ☐ combine
- ☐ increase

7. Which of the following best explains the process of permineralization mentioned in paragraph 3?

- ☐ Water containing calcium carbonate circulates through a shell and deposits sediment.
- ☐ Liquid containing chemicals hardens an already existing fossil structure.
- ☐ Water passes through sediment surrounding a fossil and removes its chemical content.
- ☐ A chemical substance enters a fossil and changes its shape.

Paragraph 4: Petrification may also involve a simultaneous exchange of the original substance of a dead plant or animal with mineral matter of a different composition. This process is termed "replacement" because solutions have dissolved the original material and replaced it with an equal volume of the new substance. Replacement can be a marvelously precise process, so that details of shell ornamentation, tree rings in wood, and delicate structures in bone are accurately preserved.

8. The word "precise" in the passage is closest in meaning to

- ☐ complex
- ☐ quick
- ☐ exact
- ☐ reliable

Paragraph 5: Another type of fossilization, known as carbonization, occurs when soft tissues are preserved as thin films of carbon. Leaves and tissue of soft-bodied organisms such as jellyfish or worms may accumulate, become buried and compressed, and lose their volatile constituents. The carbon often remains behind as a blackened silhouette.

9. Paragraph 5 suggests which of the following about the carbonization process?

- ☐ It is completed soon after an organism dies.
- ☐ It does not occur in hard-shell organisms.
- ☐ It sometimes allows soft-tissued organisms to be preserved with all their parts.

☐ It is a more precise process of preservation than is replacement.

Paragraph 6: Although it is certainly true that the possession of hard parts enhances the **prospect** of preservation, organisms having soft tissues and organs are also occasionally preserved. Insects and even small invertebrates have been found preserved in the hardened resins of conifers and certain other trees. X-ray examination of thin slabs of rock sometimes reveals the ghostly outlines of tentacles, digestive tracts, and visual organs of a variety of marine creatures. Soft parts, including skin, hair, and viscera of ice age mammoths, have been preserved in frozen soil or in the oozing tar of oil seeps.

10. The word "**prospect**" in the passage is closest in meaning to

- ☐ completion
- ☐ variety
- ☐ possibility
- ☐ speed

Paragraph 7: The probability that actual remains of soft tissue will be preserved is improved if the organism dies in an environment of rapid deposition and oxygen deprivation. Under such conditions, the destructive effects of bacteria are diminished. The Middle Eocene Messel Shale (from about 48 million years ago) of Germany accumulated in such an environment. The shale was deposited in an oxygen-deficient lake where lethal gases sometimes bubbled up and killed animals. Their remains accumulated on the floor of the lake and were then covered by clay and silt. Among the superbly preserved Messel fossils are insects with iridescent exoskeletons (hard outer coverings), frogs with skin and blood vessels intact, and even entire small mammals with preserved fur and soft tissue.

11. According to paragraph 7, how do environments containing oxygen affect fossil preservation?

- ☐ They increase the probability that soft-tissued organisms will become fossils.
- ☐ They lead to more bacteria production.
- ☐ They slow the rate at which clay and silt are deposited.
- ☐ They reduce the chance that animal remains will be preserved.

12. According to the passage, all of the following assist in fossil preservation EXCEPT

- ☐ the presence of calcite in an organism's skeleton
- ☐ the presence of large open areas along an ocean floor
- ☐ the deposition of a fossil in sticky substances such as sap or tar
- ☐ the rapid burial of an organism under layers of silt

■ Another type of fossilization, known as carbonization, occurs when soft tissues are preserved as thin films of carbon. ■ Leaves and tissue of soft-bodied organisms such as jellyfish or worms may accumulate, become buried and compressed, and lose their volatile constituents. ■ The carbon often remains behind as a blackened silhouette. ■

13. Look at the four squares [■] that indicate where the following sentence can be added to the passage.

But the evidence of past organic life is not limited to petrification.

Where would the sentence best fit?

Click on a square [■] to insert the sentence in the passage.

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some answer choices do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. This question is worth 2 points.

The remains of ancient life are amazingly well preserved in the form of fossils.

-
-
-

Answer Choices

- Environmental characteristics like those present on ocean floors increase the likelihood that plant and animal fossils will occur.
- Fossils are more likely to be preserved in shale deposits than in deposits of clay and silt.
- The shells of organisms can be preserved by processes of chemical precipitation or mineral exchange.
- Freezing enables the soft parts of organisms to survive longer than the hard parts.
- Comparatively few fossils are found in the terrestrial deposits of streams and lakes.
- Thin films of carbon may remain as an indication of soft tissue or actual tissue may be preserved if exposure to bacteria is limited.

参考答案:

1. C
2. A
3. A
4. D
5. C
6. D
7. B
8. C
9. B
10. C
11. D
12. B
13. A
14. Environmental characteristics ...
The shells of organisms ...
Thin films of carbon ...

化石保存

在生物体死后有很多种途径会将其彻底的破坏，化石却可以令人惊讶的长久保存。食腐动物和细菌的破坏、化学性腐烂、腐蚀以及其它地质因素都会非常不利于保存。不过，在少数情况下如果生物体具有矿化的骨骼并且死于可以迅速被沉积物掩埋的地方，就有可能避免被完全破坏。海底通常就具有上述的两方面条件，这里生活着很多带壳的无脊椎动物（没有脊椎的动物），连绵的沉积颗粒雨会把它们掩埋起来。虽然多数的化石是在海相沉积岩中发现的，但是在溪流和湖泊留下的陆相沉积物中也发现过。有些陷入焦油和流沙、冻结在冰中、被岩浆包裹或被火山尘雨吞没的动植物得以保存下来。

术语“化石”常常意味着石化，按字面意思来解释就是变成了石头。生物体死后，软组织一般会被食腐动物和细菌吃掉。可能会留下蜗牛或蛤蜊空壳，如果空壳足够坚固并且能抵御分解，就有可能在很长一段时间内基本上保持原样。事实上，我们现在所知的在沉积物中发现的海洋无脊椎动物保存良好的壳已超过了 1 亿年之久。不过，很多海洋生物的骨骼是由称为霏石的各式碳酸钙矿物质组成的。虽然霏石与我们更为熟悉的矿物方解石具有同样的组成，但是它的晶型不同，相对不稳定，最终会变成更稳定的方解石。

留下的蜗牛或蛤蜊的壳还会经历其它诸多过程，增加了它们被保存下来的几率。含有溶解的二氧化硅、碳酸钙或铁的水可能会流经包裹着空壳的沉积物，并沉积到诸如骨髓腔和骨头内曾经是血管和神经的管中。这种情况下，骨和壳的原始组成没有改变，但是形成的化石更坚硬并且更持久。这种在孔隙中填充化学沉积物的过程就叫做“矿质充填作用”。

石化还可能同时涉及死亡的动植物的原有物质与不同组成的矿物质的交换作用。该过程叫做“置换作用”，因为溶液溶解了原始物质并将其置换成为等体积的新物质。置换是一个让人难以置信的精确过程，空壳上的纹路细节、树木的年龄以及骨骼的精细结构都被精准地保存了下来。

另一个种类型的石化，称为“碳化”，当软组织被保存在碳薄膜中时会发生碳化。树叶和软体动物例如水母或蠕虫的组织可能会堆积起来，被掩埋并被压实，然后其中的挥发性组分会消失。碳通常会被保留下来，形成黑色的外表。

虽然拥有坚硬的的部分的确会增加保存的可能性，但是具有软组织和器官的生物也偶尔会被保存下来。在针叶树以及某些其它的树种的凝固树脂中就发现了被保存下来的昆虫，甚至是很小的无脊椎动物。对岩石薄片的 X 射线检查有时会发现各种各样的海洋生物的触手、消化道和视觉器官若隐若现的轮廓。冻土或石油渗漏时渗出的焦油中保存了包括冰河时代猛犸象皮肤、毛发、内脏在内的软组织。

如果生物体死于一个具有快速沉积和缺氧的环境，会有助于软组织残骸的保存。在这种条件下，细菌的破坏作用被减少了。德国始新世中期的麦塞尔页岩（来自 4800 万年前）就是在这种环境下积累起来的。该页岩沉积于一个缺氧的湖泊，那里时有致命的气体冒出并杀死动物。动物的残骸在湖底越积越多，然后被粘土和淤泥所覆盖。在保存极佳的麦塞尔化石中有带闪亮外骨骼（硬质外部覆盖物）的昆虫，皮肤和血管完好无损的青蛙，甚至是保存有毛皮和软组织的完整的小型哺乳动物。

Geothermal Energy

Earth's internal heat, fueled by radioactivity, provides the energy for plate tectonics and continental drift, mountain building, and earthquakes. It can also be harnessed to drive electric generators and heat homes. Geothermal energy becomes available in a practical form when underground heat is transferred by water that is heated as it passes through a subsurface region of hot rocks (a heat reservoir) that may be hundreds or thousands of feet deep. The water is usually naturally occurring groundwater that seeps down along fractures in the rock; less typically, the water is artificially introduced by being pumped down from the surface. The water is brought to the surface, as a liquid or steam, through holes drilled for the purpose.

By far the most abundant form of geothermal energy occurs at the relatively low temperatures of 80° to 180° centigrade. Water circulated through heat reservoirs in this temperature range is able to extract enough heat to warm residential, commercial, and industrial spaces. More than 20,000 apartments in France are now heated by warm underground water drawn from a heat reservoir in a geologic structure near Paris called the Paris Basin. Iceland sits on a volcanic structure known as the Mid-Atlantic Ridge. Reykjavik, the capital of Iceland, is entirely heated by geothermal energy derived from volcanic heat.

Geothermal reservoirs with temperatures above 180° centigrade are useful for generating electricity. They occur primarily in regions of recent volcanic activity as hot, dry rock; natural hot water; or natural steam. The latter two sources are limited to those few areas where surface water seeps down through underground faults or fractures to reach deep rocks heated by the recent activity of molten rock material. The world's largest supply of natural steam occurs at The Geysers, 120 kilometers north of San Francisco, California. In the 1990s enough electricity to meet about half the needs of San Francisco was being generated there. This facility was then in its third decade of production and was beginning to show signs of decline, perhaps because of over development. By the late 1990s some 70 geothermal electric-generating plants were in operation in California, Utah, Nevada, and Hawaii, generating enough power to supply about a million people. Eighteen countries now generate electricity using geothermal heat.

Extracting heat from very hot, dry rocks presents a more difficult problem: the rocks must be fractured to permit the circulation of water, and the water must be provided artificially. The rocks are fractured by water pumped down at very high pressures. Experiments are under way to develop technologies for exploiting this resource.

Like most other energy sources, geothermal energy presents some environmental problems. The surface of the ground can sink if hot groundwater is withdrawn without being replaced. In addition, water heated geothermally can contain salts and toxic materials dissolved from the hot rock. These waters present a disposal problem if they are not returned to the ground from which they were removed.

The contribution of geothermal energy to the world's energy future is difficult to estimate. Geothermal energy is in a sense not renewable, because in most cases the heat would be drawn out of a reservoir much more rapidly than it would be replaced by the very slow geological processes by which heat flows through solid rock into a heat reservoir. However, in many places (for example, California, Hawaii, the Philippines, Japan, Mexico, the rift valleys of Africa) the resource is potentially so large that its future will depend on the economics of production. At present, we can make efficient use of only naturally occurring hot water or steam deposits.

Although the potential is enormous, it is likely that in the near future geothermal energy can make important local contributions only where the resource is close to the user and the economics are favorable, as they are in California, New Zealand, and Iceland. Geothermal energy probably will not make large-scale contributions to the world energy budget until well into the twenty-first century, if ever.

Paragraph 1: Earth's internal heat, fueled by radioactivity, provides the energy for plate tectonics and continental drift, mountain building, and earthquakes. It can also be harnessed to drive electric generators and heat homes. Geothermal energy becomes available in a **practical** form when underground heat is transferred by water that is heated as it passes through a subsurface region of hot rocks (a heat reservoir) that may be hundreds or thousands of feet deep. The water is usually naturally occurring groundwater that seeps down along fractures in the rock; less typically, the water is artificially introduced by being pumped down from the surface. The water is brought to the surface, as a liquid or steam, through holes drilled for the purpose.

1. According to the processes described in paragraph 1, what is the relationship between radioactivity and the steam produced by geothermal heat?

- ☐ Geothermally heated steam is produced when water is exposed to radioactivity deep underground.
- ☐ When water is introduced into holes drilled thousands of feet in the ground, it becomes radioactive and turns to steam.
- ☐ Radioactivity heats Earth's interior rock, which in turn can heat water to the point it becomes steam.
- ☐ When a reservoir of steam in subsurface rock is produced by radioactivity, it is said to be geothermally heated.

2. The word "**practical**" in the passage is closest in meaning to

- ☐ usable
- ☐ plentiful
- ☐ economical
- ☐ familiar

Paragraph 2: By far the most **abundant** form of geothermal energy occurs at the relatively low temperatures of 80° to 180° centigrade. Water circulated through heat reservoirs in this temperature range is able to extract enough heat to warm residential, commercial, and industrial spaces. More than 20,000 apartments in France are now heated by warm underground water drawn from a heat reservoir in a geologic structure near Paris called the Paris Basin. Iceland sits on a volcanic structure known as the Mid-Atlantic Ridge. Reykjavik, the capital of Iceland, is entirely heated by geothermal energy derived from volcanic heat.

3. The word "**abundant**" in the passage is closest in meaning to

- ☐ economical
- ☐ familiar
- ☐ plentiful
- ☐ useful

4. According to paragraph 2, which of the following is true about heat reservoirs with a temperature in the range of 80° to 180° centigrade?

- ☐ They are under international control.

-
- ☐ They are more common than reservoirs that have a higher temperature.
 - ☐ Few of them produce enough heat to warm large industrial spaces.
 - ☐ They are used to generate electricity.

Paragraph 3: Geothermal reservoirs with temperatures above 180° centigrade are useful for generating electricity. They occur primarily in regions of recent volcanic activity as hot, dry rock; natural hot water; or natural steam. The latter two sources are limited to those few areas where surface water seeps down through underground faults or fractures to reach deep rocks heated by the recent activity of molten rock material. The world's largest supply of natural steam occurs at The Geysers, 120 kilometers north of San Francisco, California. In the 1990s enough electricity to meet about half the needs of San Francisco was being generated there. This facility was then in its third decade of production and was beginning to show signs of decline, perhaps because of over development. By the late 1990s some 70 geothermal electric-generating plants were in operation in California, Utah, Nevada, and Hawaii, generating enough power to supply about a million people. Eighteen countries now generate electricity using geothermal heat.

5. According to paragraph 3, what is the connection between underground faults and naturally occurring steam?
 - ☐ Underground faults enable the heat from molten-rock material to escape upward to regions where it can heat surface water enough to produce steam.
 - ☐ Underground faults are created by steam that is produced in geothermal reservoirs deep inside Earth.
 - ☐ Underground faults create spaces in which natural steam is sometimes trapped.
 - ☐ Underground faults allow surface water to reach deep rocks that are hot enough to turn it into steam.
6. In paragraph 3, why does the author mention that in the 1990s The Geysers was in its third decade of production?
 - ☐ To provide the historical context of the geothermal production of electricity in the United States
 - ☐ To imply that The Geysers was the first geothermal site to be put into production in California
 - ☐ To help explain the signs of decline shown by The Geysers
 - ☐ To explain why 70 new geothermal sites were put into electricity production in the late 1990s
7. Which of the following can be inferred from paragraphs 2 and 3 about geothermal reservoirs?
 - ☐ Volcanic heat is associated only with geothermal reservoirs that have a temperature over 180° centigrade.
 - ☐ More countries produce power from geothermal reservoirs than use them for heating buildings.
 - ☐ Most geothermal reservoirs are suitable for producing electricity.
 - ☐ A higher geothermal reservoir temperature is needed to generate electricity than is needed to heat homes.

Paragraph 4: Extracting heat from very hot, dry rocks presents a more difficult problem: the rocks must be fractured to permit the circulation of water, and the water must be provided artificially. The rocks are fractured by water pumped down at very high pressures. Experiments are under way to develop technologies for **exploiting** this resource.

8. According to paragraph 4, extracting heat from very hot, dry rocks is difficult in part because
 - ☐ the underground rock must be fractured before heat can be removed from it
 - ☐ the water above the rock is under very high pressure
 - ☐ the rock breaks apart when water is pumped into it
 - ☐ the water circulated through the rock must be much cooler than the rock itself
9. The word "**exploiting**" in the passage is closest in meaning to
 - ☐ locating
 - ☐ increasing

-
- ☐ making use of
 - ☐ estimating the size of

Paragraph 5: Like most other energy sources, geothermal energy presents some environmental problems. The surface of the ground can **sink** if hot groundwater is withdrawn without being replaced. In addition, water heated geothermally can contain salts and **toxic materials** dissolved from the hot rock. These waters present a disposal problem if they are not returned to the ground from which they were removed.

10. How is the problem that the surface may **sink** related to the problem that water heated geothermally may contain **toxic materials**?

- ☐ Both problems could be solved by returning groundwater that is removed from an underground heat reservoir back to the reservoir after heat is extracted from it.
- ☐ The problem of sinking is more difficult to solve than is the problem of toxic materials.
- ☐ Land at the surface sinks because the rock beneath the surface is weakened when salts and toxic materials are removed from it in the process of extracting geothermal energy.
- ☐ Both problems are caused by the fact that the hot groundwater in a heat reservoir dissolves the rock, which weakens the rock and makes the water toxic with salt.

Paragraph 6: The contribution of geothermal energy to the world's energy future is difficult to estimate. **Geothermal energy is in a sense not renewable, because in most cases the heat would be drawn out of a reservoir much more rapidly than it would be replaced by the very slow geological processes by which heat flows through solid rock into a heat reservoir.** However, in many places (for example, California, Hawaii, the Philippines, Japan, Mexico, the rift valleys of Africa) the resource is potentially so large that its future will depend on the economics of production. At present, we can make efficient use of only naturally occurring hot water or steam deposits. Although the potential is enormous, it is likely that in the near future geothermal energy can make important local contributions only where the resource is close to the user and the economics are favorable, as they are in California, New Zealand, and Iceland. Geothermal energy probably will not make large-scale contributions to the world energy budget until well into the twenty-first century, if ever.

11. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- ☐ Heat flows through solid rock very slowly, so it takes a very long time for geological processes to produce a reservoir of geothermal energy.
- ☐ Geothermal energy is not renewable because heat flows very slowly through solid rock into or out of a heat reservoir.
- ☐ The heat quickly removed from a heat reservoir is replaced so slowly by geological processes that geothermal energy is not practically speaking, renewable.
- ☐ In most cases, heat travels into a heat reservoir so slowly that it is a much quicker process to remove the heat from a reservoir than to replace it.

12. In paragraph 6, the author implies that in California, Hawaii, the Philippines, Japan, Mexico, and the rift valleys of Africa the potential size of the geothermal resource is so large that

- ☐ it might be economically worth developing these sites even though geothermal energy is not renewable
- ☐ these sites will be the first geothermal energy sites to be developed with new technology
- ☐ these sites are likely to make a large-scale contribution to the world energy budget in the twenty-first century
- ☐ it does not matter whether they have naturally occurring deposits of hot water or steam

Earth's internal heat, fueled by radioactivity, provides the energy for plate tectonics and continental drift,

mountain building, and earthquakes. It can also be harnessed to drive electric generators and heat homes. Geothermal energy becomes available in a practical form when underground heat is transferred by water that is heated as it passes through a subsurface region of hot rocks (a heat reservoir) that may be hundreds or thousands of feet deep. The water is usually naturally occurring groundwater that seeps down along fractures in the rock; less typically, the water is artificially introduced by being pumped down from the surface. The water is brought to the surface, as a liquid or steam, through holes drilled for the purpose.

By far the most abundant form of geothermal energy occurs at the relatively low temperatures of 80° to 180° centigrade. Water circulated through heat reservoirs in this temperature range is able to extract enough heat to warm residential, commercial, and industrial spaces. More than 20,000 apartments in France are now heated by warm underground water drawn from a heat reservoir in a geologic structure near Paris called the Paris Basin. Iceland sits on a volcanic structure known as the Mid-Atlantic Ridge. Reykjavik, the capital of Iceland, is entirely heated by geothermal energy derived from volcanic heat.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

In either case, the heated water will usually be under considerable pressure, and so may have a temperature that is well above its sea-level boiling point of 100° centigrade.

Where would the sentence best fit? Click on a square to add the sentence to the passage.

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Heat reservoirs in the form of hot rock far beneath Earth's surface are a potential source of usable geothermal energy.

- ☐
- ☐
- ☐

Answer Choices

- ☐ Heat reservoirs with a temperature from 80° to 180° centigrade can be used, as in France and Iceland, to heat buildings.
- ☐ A number of countries now use geothermal reservoirs that contain water or steam above 180° centigrade to generate electricity.
- ☐ Most heat reservoirs with a temperature above 180° centigrade cannot be used for energy because they are usually too close to recent volcanic activity.
- ☐ The sinking of land above heat reservoirs and other environmental problems arise when water is pumped into a heat reservoir under high pressure.
- ☐ Experiments are under way to determine if geothermally heated waters could be used as a source of certain minerals that have been dissolved out of hot rocks deep within Earth.
- ☐ A number of issues, including how to extract heat from reservoirs that do not have a natural supply of water, will significantly limit the use of geothermal energy for the foreseeable future.

参考答案:

1. C
2. A
3. C
4. B
5. D
6. C
7. D
8. A
9. C
10. A
11. C
12. A
13. B
14. Heat reservoirs with ...
The sinking of ...
A number of issues ...

地热能

地球内部因放射产生的热量为板块运动、大陆漂移、造山运动和地震提供了能量。这种热量还可以用来驱动发电机发电以及为家庭供暖。水流经地表下可能深达几百甚至几千英尺处的热岩区域（一种热储）被加热，通过水的传输地下的热量就变成了可以加以利用的地热能形式。这些水通常是沿着岩石的断面下渗的天然地下水，少数情况下是人为从地表泵入的水。通过为了采集地热能所钻的孔，这些水会以液体或蒸汽的形式被带到地表。

到目前为止，最丰富的地热能形式介于相对较低的 **80 到 180** 摄氏度的温度。在此温度范围内的热储内循环的水可以提取出足够的热量加热民用、商用和工业用空间。目前在法国有 **20000** 间以上的公寓是由从巴黎附近叫做巴黎盆地的地质构造的热储中汲取的温暖的地下水供暖的。冰岛位于一个被称为是大西洋中脊的火山构造之上。冰岛的首都雷克雅维克完全是用火山热产生的地热能供暖的。

温度高于 **180** 摄氏度的地热储集层可以用于发电。这类地热储集层主要位于有近期火山活动的区域，出现的形式有干热的岩石、天然热水或天然蒸汽。后两种形式的储集层局限于少数区域，在这些区域，地表水通过地下断层或断裂渗入到被近期的熔岩活动加热的深层岩石。世界上最大的天然蒸汽供应位于加州旧金山以北 **120** 公里处的盖沙斯。二十世纪九十年代那里产出的电能大约能满足旧金山半数的需求。当时已经是该发电厂运行的第三个十年，并且开始显示出发电量下降的迹象，这可能是由于过度的开发。到二十世纪九十年代末，加州、犹他州、内华达州和夏威夷约有 **70** 个地热发电厂在运转，产生的电能足以供应一百万人口所需。目前有 **18** 个国家利用地热能发电。

要从极干热的岩石中提取热量存在一个更大的难题：必须破碎岩石使得水可以在其中循环，而且水必须是人工提供的。通过泵入高压水可以将岩石破碎。开发利用此能源的技术的实验正在进行之中。

就像大多数其它能源一样，地热能也具有一些环境问题。如果抽取地下热水而又不泵回，地表就会下沉。此外，地热加热的水含有从热岩中溶出的盐分和有毒物质。这些水如果不能被输送回抽取的地方，将会产生处理方面的问题。

地热能对世界能源未来的贡献是难以估量的。地热能在某种意义上讲是不可再生的，因为多数情况下从热储提取热量的速度要比热流极为缓慢地从坚硬的岩石传到热储的地质作用的更新速度快得多。不过，在很多地区（例如加州、夏威夷、菲律宾、日本、墨西哥、非洲的裂谷），这种能源可能非常可观，它们的前景将取决于生产的经济性。目前，我们只能有效的利用天然形成的热水或蒸汽形式的地热能。尽管潜能巨大，近期之内地热能可能只能对毗邻用户以及经济状况良好的地区做出重要的局部贡献，就像在加州、新西兰和冰岛地区的情况一样。即便到 **21** 世纪后期，地热能也不太可能会对世界的能量预算做出大尺度的贡献。

The Origins of Agriculture

How did it come about that farming developed independently in a number of world centers (the Southeast Asian mainland, Southwest Asia, Central America, lowland and highland South America, and equatorial Africa) at more or less the same time? Agriculture developed slowly among populations that had an extensive knowledge of plants and animals. Changing from hunting and gathering to agriculture had no immediate advantages. To start with, it forced the population to abandon the nomad's life and become sedentary, to develop methods of storage and, often, systems of irrigation. While hunter-gatherers always had the option of moving elsewhere when the resources were exhausted, this became more difficult with farming. Furthermore, as the archaeological record shows, the state of health of agriculturalists was worse than that of their contemporary hunter-gatherers.

Traditionally, it was believed that the transition to agriculture was the result of a worldwide population crisis. It was argued that once hunter-gatherers had occupied the whole world, the population started to grow everywhere and food became scarce; agriculture would have been a solution to this problem. We know, however, that contemporary hunter-gatherer societies control their population in a variety of ways. The idea of a world population crisis is therefore unlikely, although population pressure might have arisen in some areas.

Climatic changes at the end of the glacial period 13,000 years ago have been proposed to account for the emergence of farming. The temperature increased dramatically in a short period of time (years rather than centuries), allowing for a growth of the hunting-gathering population due to the abundance of resources. There were, however, fluctuations in the climatic conditions, with the consequences that wet conditions were followed by dry ones, so that the availability of plants and animals oscillated brusquely.

It would appear that the instability of the climatic conditions led populations that had originally been nomadic to settle down and develop a sedentary style of life, which led in turn to population growth and to the need to increase the amount of food available. Farming originated in these conditions. Later on, it became very difficult to change because of the significant expansion of these populations. It could be argued, however, that these conditions are not sufficient to explain the origins of agriculture. Earth had experienced previous periods of climatic change, and yet agriculture had not been developed.

It is archaeologist Steven Mithen's thesis, brilliantly developed in his book *The Prehistory of the Mind* (1996), that approximately 40,000 years ago the human mind developed cognitive fluidity, that is, the integration of the specializations of the mind: technical, natural history (geared to understanding the behavior and distribution of natural resources), social intelligence, and the linguistic capacity. Cognitive fluidity explains the appearance of art, religion, and sophisticated speech. Once humans possessed such a mind, they were able to find an imaginative solution to a situation of severe economic crisis such as the farming dilemma described earlier. Mithen proposes the existence of four mental elements to account for the emergence of farming: (1) the ability to develop tools that could be used intensively to harvest and process plant resources; (2) the tendency to use plants and animals as the medium to acquire social prestige and power; (3) the tendency to develop "social relationships" with animals structurally similar to those developed with people—specifically, the ability to think of animals as people (anthropomorphism) and of people as animals (totemism); and (4) the tendency to manipulate plants and animals.

The fact that some societies domesticated animals and plants, discovered the use of metal tools, became literate, and developed a state should not make us forget that others developed pastoralism or horticulture (vegetable gardening) but remained illiterate and at low levels of productivity; a few entered the modern period as hunting and gathering societies. It is anthropologically important to inquire into the conditions that made some societies adopt

agriculture while others remained hunter-gatherers or horticulturalists. However, it should be kept in mind that many societies that knew of agriculture more or less consciously avoided it. Whether Mithen's explanation is satisfactory is open to contention, and some authors have recently emphasized the importance of other factors.

Paragraph 1: How did it come about that farming developed independently in a number of world centers (the Southeast Asian mainland, Southwest Asia, Central America, lowland and highland South America, and equatorial Africa) at more or less the same time? Agriculture developed slowly among populations that had an extensive knowledge of plants and animals. Changing from hunting and gathering to agriculture had no immediate advantages. To start with, it forced the population to abandon the nomad's life and become sedentary, to develop methods of storage and, often, systems of irrigation. While hunter-gatherers always had the **option** of moving elsewhere when the resources were exhausted, this became more difficult with farming. Furthermore, as the archaeological record shows, the state of health of agriculturalists was worse than that of their contemporary hunter-gatherers.

1. The word "**option**" in the passage is closest in meaning to
 - ☐ choice
 - ☐ benefit
 - ☐ idea
 - ☐ experience
2. According to paragraph 1, all of the following are advantages of hunting and gathering over agriculture EXCEPT:
 - ☐ It is a healthier lifestyle.
 - ☐ It requires less knowledge of plants and animals.
 - ☐ It does not need storage capabilities.
 - ☐ It is not tied to any specific location.

Paragraph 2: Traditionally, it was believed that the transition to agriculture was the result of a worldwide population crisis. It was argued that once hunter-gatherers had occupied the whole world, the population started to grow everywhere and food became scarce; agriculture would have been a solution to this problem. We know, however, that contemporary hunter-gatherer societies control their population in a variety of ways. The idea of a world population crisis is **therefore** unlikely, although population pressure might have arisen in some areas.

3. The word "**therefore**" in the passage is closest in meaning to
 - ☐ in theory
 - ☐ obviously
 - ☐ frequently
 - ☐ as a result
4. Which of the following best describes the way paragraph 2 is organized?
 - ☐ A possible explanation for a phenomenon is presented and then criticized
 - ☐ Two similar ways of accounting for a puzzling fact are considered.
 - ☐ Early societies' response to a problem is contrasted with contemporary societies' response.
 - ☐ A prehistoric development is first explained in traditional terms and then in contemporary terms.

Paragraph 3: Climatic changes at the end of the glacial period 13,000 years ago have been proposed to account for the emergence of farming. The temperature increased dramatically in a short period of time (years rather than centuries), allowing for a growth of the hunting-gathering population due to the abundance of resources. There were, however, fluctuations in the climatic conditions, with the consequences that wet conditions were followed by dry ones, so that the availability of plants and animals oscillated brusquely.

5. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- ☐ The resources needed by the growing hunting and gathering population increased rapidly once temperatures rose.
- ☐ Dramatic temperature increases and the simultaneous growth of the hunting and gathering population led to the need for more resources.
- ☐ Higher temperatures led to the existence of increased resources, thus enabling the hunting and gathering population to grow.
- ☐ The dramatic temperature increase occurred during the few years when abundant resources allowed the hunting and gathering population to grow.

6. According to paragraph 3, the abundance of resources fluctuated sharply after the end of the glacial period because

- ☐ locally abundant resources were quickly exhausted by hunter-gatherers
- ☐ the temperature became much higher in some areas over others
- ☐ different types of plants and animals became available as the climate changed
- ☐ the amount of rainfall varied radically from one period to the next

Paragraph 4: It would appear that the instability of the climatic conditions led populations that had originally been nomadic to settle down and develop a sedentary style of life, which led in turn to population growth and to the need to increase the amount of food available. Farming originated in these conditions. Later on, it became very difficult to change because of the significant expansion of these populations. It could be argued, however, that these conditions are not sufficient to explain the origins of agriculture. Earth had experienced previous periods of climatic change, and yet agriculture had not been developed.

7. It can be inferred from paragraph 4 that it was difficult for people to change from farming back to hunting and gathering because

- ☐ people had become more used to different types of food
- ☐ climatic conditions were no longer favorable for hunting and gathering
- ☐ populations had become too large to be supported by hunting and gathering
- ☐ the farmer's sedentary life was easier than the hunter-gatherer's nomadic life

8. Why does the author state that "Earth had experienced previous periods of climatic change, and yet agriculture had not been developed"?

- ☐ To suggest that climate change had occurred long before the development of agriculture
- ☐ To argue that climate change does not properly explain why agriculture developed
- ☐ To challenge the assumption that agriculture developed only in some parts of the world
- ☐ To question the claim that climate change occurred at the time when agriculture developed

Paragraph 5: It is archaeologist Steven Mithen's thesis, brilliantly developed in his book *The Prehistory of the Mind* (1996), that approximately 40,000 years ago the human mind developed cognitive fluidity, that is, the integration of the specializations of the mind: technical, natural history (geared to understanding the behavior and

distribution of natural resources), social intelligence, and the linguistic capacity. Cognitive fluidity explains the appearance of art, religion, and sophisticated speech. Once humans possessed such a mind, they were able to find an **imaginative** solution to a situation of severe economic crisis such as the farming dilemma described earlier. Mithen proposes the existence of four mental elements to account for the emergence of farming: (1) the ability to develop tools that could be used intensively to harvest and process plant resources; (2) the tendency to use plants and animals as the medium to acquire social prestige and power; (3) the tendency to develop "social relationships" with animals structurally similar to those developed with people—specifically, the ability to think of animals as people (anthropomorphism) and of people as animals (totemism); and (4) the tendency to manipulate plants and animals.

9. The word "**imaginative**" in the passage is closest in meaning to

- ☐ complex
- ☐ creative
- ☐ immediate
- ☐ reliable

10. According to paragraph 5, Steven Mithen believes that all of the following contributed to the emergence of farming EXCEPT

- ☐ the development of a mind flexible enough to come up with solutions to complex problems
- ☐ the tendency to use plants and animals to acquire power
- ☐ the tendency to emphasize the differences between animals and people
- ☐ the ability to make tools that could be used for the large-scale harvesting of plants

Paragraph 6: The fact that some societies domesticated animals and plants, discovered the use of metal tools, became literate, and developed a state should not make us forget that others developed pastoralism or horticulture (vegetable gardening) but remained illiterate and at low levels of productivity; a few entered the modern period as hunting and gathering societies. It is anthropologically important to inquire into the conditions that made some societies adopt agriculture while others remained hunter-gatherers or horticulturalists. However, it should be kept in mind that many societies that knew of agriculture more or less consciously avoided it. Whether Mithen's explanation is satisfactory is open to **contention**, and some authors have recently emphasized the importance of other factors.

11. The word "**contention**" in the passage is closest in meaning to

- ☐ investigation
- ☐ improvement
- ☐ debate
- ☐ interpretation

12. According to paragraph 6, which of the following is a weakness of Mithen's explanation?

- ☐ It does not clearly distinguish agriculture from pastoralism and horticulture.
- ☐ It fails to explain why some societies adopted agriculture while others did not.
- ☐ It explains the domestication of plants and animals but not the development of metal tools.
- ☐ It overlooks the fact that illiteracy and low productivity remain problems even today

Paragraph 7: How did it come about that farming developed independently in a number of world centers (the Southeast Asian mainland, Southwest Asia, Central America, lowland and highland South America, and equatorial Africa) at more or less the same time? Agriculture developed slowly among populations that had an extensive knowledge of plants and animals. ■ Changing from hunting and gathering to agriculture had no immediate advantages. ■ To start with, it forced the population to abandon the nomad's life and become sedentary, to develop methods of storage and, often, systems of irrigation. ■ While hunter-gatherers always had the option of moving elsewhere when

the resources were exhausted, this became more difficult with farming. ■ Furthermore, as the archaeological record shows, the state of health of agriculturalists was worse than that of their contemporary hunter-gatherers.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Because humans had built up this knowledge as hunter-gatherers, it is logical to conclude that over time they would have become extremely efficient.

Where would the sentence best fit? Click on a square to add the sentence to the passage.

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Drag your answer choices to the spaces where they belong. To remove an answer choice, click on it. To review the passage, click **View Text**.

It is unclear why hunter-gatherers in different parts of the world independently developed agriculture at roughly the same time.

- ☐
- ☐
- ☐

Answer Choices

- ☐ One obstacle to the transition from a nomadic lifestyle to the sedentary lifestyle required by agriculture was that hunter-gatherers had not developed storage techniques.
- ☐ It seems unlikely that agriculture emerged in response to a food shortage brought on by a worldwide population crisis that developed once the whole world was occupied.
- ☐ The origins of agriculture maybe linked to climate change at the end of the last ice age, but this does not explain why earlier climatic instability had not led to agriculture.
- ☐ The only available means of understanding the social organization and technical abilities of ancient hunter-gatherer societies is the study of contemporary hunter-gatherers.
- ☐ One recent theory suggests that the invention of agriculture was made possible by the integration of various mental capacities in the human mind.
- ☐ Little is known about why only some societies that adopted agriculture rapidly progressed to using metal tools, becoming literate, and developing a state.

参考答案:

1. A
2. B
3. D
4. A
5. C
6. D
7. C
8. B
9. B
10. C
11. C
12. B
13. A
14. It seems unlikely ...
The origins of ...
The only available ...

农业的起源

农业是如何独立地在世界的多个中心（东南亚大陆、西南亚、中美洲、南美的高地与低地以及赤道非洲地区）几乎同时发展起来的呢？在那些熟知动植物的人类中农业发展得相当缓慢。从打猎和采集转变为农耕并没有显而易见的好处。首先，它会迫使人们放弃游牧生活，定居下来去发明贮存方法，并且发展出通常所需的灌溉系统。采集狩猎者往往可以在资源耗尽的时候迁到它处，对于耕作者来说就没这么容易。而且，考古学记录显示，农民的健康状况要比同时代的采集狩猎者差。

传统上认为向农业转变是世界性人口危机带来的结果。有人认为一旦采集狩猎者遍及全世界，人口开始增长，食物变得匮乏，此时农业就是解决这个问题的一种方法。但是，众所周知，同时代的采集狩猎者具有很多种控制人口的方法。因此世界性人口危机的想法就不太可能成立了，虽然在某些地区可能会存在人口压力。

有人提出冰河时代末期，也就是 **13000** 年前的气候变化是农业起源的原因。短时期内（以年而不是以世纪为单位）温度急剧上升使得食物资源丰富，采集狩猎者人口增加。但是，气候条件存在波动，造成干湿交替，以致可以获取的动植物数量忽高忽低。

似乎是气候条件的不稳定性造成了那些原本放牧的人定居下来，逐渐发展出了定居的生活方式，这也反过来造成人口增长以及所需食物量的增加。在这些条件下，农业诞生了。后来，由于人口的急剧膨胀，这种生活方式就难以再变回去了。但是，我们可以说这些条件并不足以解释农业的起源。先前地球经历了多个气候变化的时期，但是也没有发展出农业。

考古学家斯蒂文·米森有一个观点，这在他的《思维的史前史》一书中有精彩地阐述，该观点认为约在 **40000** 年前，人类的思维形成了认知流动性，即对各种特化的思维加以整合：技术史、博物学（以理解自然资源的行为和分布）、社交智能以及语言能力。认识流动性解释了艺术、宗教以及复杂的演讲。一旦人类拥有了这样的思维，他们就可以找到解决严重的经济危机，例如先前所述的农业困境的具有创造力的方法。米森提出存在四种可以解释农业起源的心理因素：**（1）** 打造集中用于收割以及加工植物资源的工具的能力；**（2）** 将动植物作为获取社会声望和权力的手段的趋势；**（3）** 与动物发展出与人类结构相似的“社会关系”的趋势——尤其是把动物当做人（神人同形同性论）以及把人当做动物（图腾崇拜）；**（4）** 驯化动植物的趋势。

有些社会驯化了动植物、发现可以使用金属打造工具、通文达理并且形成了国家的事实不应使我们忘记其他社会虽发展出了畜牧或园艺（蔬菜园艺）但是仍停留在文盲状态，并且生产力较低，只有少数社会进入了现代的狩猎采集社会。探究使某些社会选择农业而其他社会停留在狩猎采集或园艺的条件具有重要的考古学意义。但是，我们应该记住有很多知晓农业的社会几乎是有意不选择它。米森的解释是否恰当还有待讨论，而且近来有些作者强调其它因素的重要性。

Autobiographical Memory

Think back to your childhood and try to identify your earliest memory. How old were you? Most people are not able to recount memories for experiences prior to the age of three years, a phenomenon called infantile amnesia. The question of why infantile amnesia occurs has intrigued psychologists for decades, especially in light of ample evidence that infants and young children can display impressive memory capabilities. Many find that understanding the general nature of autobiographical memory, that is, memory for events that have occurred in one's own life, can provide some important clues to this mystery. Between ages three and four, children begin to give fairly lengthy and cohesive descriptions of events in their past. What factors are responsible for this developmental turning point?

Perhaps the explanation goes back to some ideas raised by influential Swiss psychologist Jean Piaget—namely, that children under age two years represent events in a qualitatively different form than older children do. According to this line of thought, the verbal abilities that blossom in the two year old allow events to be coded in a form radically different from the action-based codes of the infant. Verbal abilities of one year olds are, in fact, related to their memories for events one year later. When researchers had one year olds imitate an action sequence one year after they first saw it, there was correlation between the children's verbal skills at the time they first saw the event and their success on the later memory task. However, even children with low verbal skills showed evidence of remembering the event; thus, memories may be facilitated by but are not dependent on those verbal skills.

Another suggestion is that before children can talk about past events in their lives, they need to have a reasonable understanding of the self as a psychological entity. The development of an understanding of the self becomes evident between the first and second years of life and shows rapid elaboration in subsequent years. The realization that the physical self has continuity in time, according to this hypothesis, lays the foundation for the emergence of autobiographical memory.

A third possibility is that children will not be able to tell their own "life story" until they understand something about the general form stories take, that is, the structure of narratives. Knowledge about narratives arises from social interactions, particularly the storytelling that children experience from parents and the attempts parents make to talk with children about past events in their lives. When parents talk with children about "what we did today" or "last week" or "last year," they guide the children's formation of a framework for talking about the past. They also provide children with reminders about the memory and relay the message that memories are valued as part of the cultural experience. It is interesting to note that some studies show Caucasian American children have earlier childhood memories than Korean children do. Furthermore, other studies show that Caucasian American mother-child pairs talk about past events three times more often than do Korean mother-child pairs. Thus, the types of social experiences children have do factor into the development of autobiographical memories.

A final suggestion is that children must begin to develop a "theory of mind"—an awareness of the concept of mental states (feelings, desires, beliefs, and thoughts), their own and those of others—before they can talk about their own past memories. Once children become capable of answering such questions as "What does it mean to remember?" and "What does it mean to know something?" improvements in memory seem to occur.

It may be that the developments just described are intertwined with and influence one another. Talking with parents about the past may enhance the development of the self-concept, for example, as well as help the child understand what it means to "remember." No doubt the ability to talk about one's past represents memory of a different level of complexity than simple recognition or recall.

Paragraph 1: Think back to your childhood and try to identify your earliest memory. How old were you? Most people are not able to recount memories for experiences prior to the age of three years, a phenomenon called infantile amnesia. The question of why infantile amnesia occurs has intrigued psychologists for decades, especially in light of **ample** evidence that infants and young children can display impressive memory capabilities. Many find that understanding the general nature of autobiographical memory, that is, memory for events that have occurred in one's own life, can provide some important clues to this mystery. Between ages three and four, children begin to give fairly lengthy and cohesive descriptions of events in their past. What factors are responsible for this developmental turning point?

1. The word "**ample**" in the passage is closest in meaning to
 - ☐ surprising
 - ☐ convincing
 - ☐ plentiful
 - ☐ questionable
2. According to paragraph 1, infantile amnesia has intrigued psychologists because
 - ☐ the ability to recount memories prior to three years of age seems to be connected to intelligence in adulthood
 - ☐ psychologists do not understand why some people are able to recount memories from before the age of three years, while others are not able to do so
 - ☐ psychologists do not understand the connection between infantile amnesia and autobiographical memory
 - ☐ although psychologists have evidence that infants have memory abilities, most people cannot remember life events that happened before the age of three years
3. According to paragraph 1, what is the evidence that a child has developed autobiographical memory?
 - ☐ The child is able to remember past events from before the age of three years.
 - ☐ The child is able to describe past events in a sufficiently lengthy and cohesive manner.
 - ☐ The child is aware that he or she does not remember experiences from before the age of three years.
 - ☐ The child is able to give a basic description of the nature of autobiographical memory.

Paragraph 2: Perhaps the explanation goes back to some ideas raised by influential Swiss psychologist Jean Piaget—namely, that children under age two years represent events in a qualitatively different form than older children do. According to this line of thought, the verbal abilities that blossom in the two year old allow events to be coded in a form radically different from the action-based codes of the infant. Verbal abilities of one year olds are, in fact, related to their memories for events one year later. When researchers had one year olds imitate an action sequence one year after they first saw it, there was correlation between the children's verbal skills at the time they first saw the event and their success on the later memory task. However, even children with low verbal skills showed evidence of remembering the event; thus, memories may be facilitated by but are not dependent on those verbal skills.

4. In paragraph 2, why does the author provide the information that children with low verbal skills showed evidence of remembering a past event?
 - ☐ To provide evidence that memories do not depend only upon verbal skills
 - ☐ To challenge the idea that one year olds are too young to form memories
 - ☐ To argue that the memory of one year olds depends only on action-based codes
 - ☐ To suggest that Piaget later revised his findings on the correlation between memory and verbal ability

Paragraph 3: Another suggestion is that before children can talk about past events in their lives, they need to have a **reasonable** understanding of the self as a psychological entity. The development of an understanding of the self

becomes evident between the first and second years of life and shows rapid **elaboration** in subsequent years. The realization that the physical self has continuity in time, according to this hypothesis, lays the foundation for the emergence of autobiographical memory.

5. The word "**reasonable**" in the passage is closest in meaning to
- ☐ consistent
 - ☐ sufficient
 - ☐ apparent
 - ☐ deep
6. The word "**elaboration**" in the passage is closest in meaning to
- ☐ development
 - ☐ specialization
 - ☐ use
 - ☐ transformation
7. According to paragraph 3, what is the relationship between autobiographical memory and the development of an understanding of the self?
- ☐ Autobiographical memory aids in the development of an understanding of the self.
 - ☐ Children possess an understanding of the self when they can talk about past events in their lives.
 - ☐ The realization that the self continues through time may aid in the onset of autobiographical memory.
 - ☐ The development of autobiographical memory helps children gain an understanding of their roles in their social relationships.

Paragraph 4: A third possibility is that children will not be able to tell their own "life story" until they understand something about the general form stories take, that is, the structure of narratives. Knowledge about narratives arises from social interactions, particularly the storytelling that children experience from parents and the attempts parents make to talk with children about past events in their lives. When parents talk with children about "what we did today" or "last week" or "last year," they guide the children's formation of a framework for talking about the past. They also provide children with reminders about the memory and relay the message that memories are valued as part of the cultural experience. It is interesting to note that some studies show Caucasian American children have earlier childhood memories than Korean children do. Furthermore, other studies show that Caucasian American mother-child pairs talk about past events three times more often than do Korean mother-child pairs. Thus, the types of social experiences children have do factor into the development of autobiographical memories.

8. All of the following are mentioned in paragraph 4 as ways in which parents help their children understand the structure of narratives EXCEPT
- ☐ talking with their children about past events
 - ☐ telling stories to their children
 - ☐ having their children repeat stories back to them
 - ☐ showing their children that they think memories are important
9. According to paragraph 4, the studies of Caucasian American and Korean children suggest which of the following?
- ☐ Autobiographical memories develop similarly across all cultures.
 - ☐ Parents from different cultures tell their children different kinds of stories about the past.
 - ☐ Children's pleasure in hearing stories varies from culture to culture.
 - ☐ The kinds of interactions children have with their parents affect the development of autobiographical memories.

Paragraph 5: A final suggestion is that children must begin to develop a "theory of mind"—an awareness of the concept of mental states (feelings, desires, beliefs, and thoughts), their own and those of others—before they can talk about their own past memories. Once children become capable of answering such questions as "What does it mean to remember?" and "What does it mean to know something?" improvements in memory seem to occur.

10. According to paragraph 5, what evidence is there that a "theory of mind" is a factor in the development of autobiographical memory?

- ☐ Even children who are not aware of their mental states are still able to talk about past events.
- ☐ Autobiographical memory decreases when a child's feelings and mental state are upset.
- ☐ Older children who are unable to achieve awareness of mental states lack autobiographical memory.
- ☐ Children's memory of past events grows once children can answer questions about what it means to know and remember.

11. The organization of the passage can best be described as

- ☐ the presentation of an argument followed by the evidence for and against it
- ☐ a description of a phenomenon followed by several possible theories about how it develops
- ☐ the definition of a psychological term followed by a history of its usage
- ☐ an explanation of a process followed by a discussion of its practical applications

Paragraph 6: It may be that the developments just described are intertwined with and influence one another. Talking with parents about the past may enhance the development of the self-concept, for example, as well as help the child understand what it means to "remember." No doubt the ability to talk about one's past represents memory of a different level of complexity than simple recognition or recall.

12. The passage supports which of the following statements about the development of autobiographical memory?

- ☐ It is unlikely that a single factor is responsible for the development of autobiographical memory.
- ☐ Jean Piaget was the first psychologist to understand the development of autobiographical memory.
- ☐ Understanding the development of autobiographical memory will help psychologists eliminate infant amnesia
- ☐ Understanding what it means to remember is the most important factor in the development of autobiographical memory.

Think back to your childhood and try to identify your earliest memory. How old were you? ■ Most people are not able to recount memories for experiences prior to the age of three years, a phenomenon called infantile amnesia. ■ The question of why infantile amnesia occurs has intrigued psychologists for decades, especially in light of ample evidence that infants and young children can display impressive memory capabilities. ■ Many find that understanding the general nature of autobiographical memory, that is, memory for events that have occurred in one's own life, can provide some important clues to this mystery. ■ Between ages three and four, children begin to give fairly lengthy and cohesive descriptions of events in their past. What factors are responsible for this developmental turning point?

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

It is unlikely that this memory will be from the first two years of life.

Where would the sentence best fit? Click on a square to add the sentence to the passage.

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are

minor ideas in the passage. **This question is worth 2 points.**

The ability to construct autobiographical memories—coherent narratives about events from one's past—is probably the joint product of several social and intellectual developments.

- ☐
- ☐
- ☐

Answer Choices

- ☐ Although children are capable of simple recognition and recall very early in life, they do not develop the capacity for autobiographical memory until the age of three or four years.
- ☐ Verbal skills and familiarity with narrative structures probably aid in the construction of autobiographical memories.
- ☐ Children's earliest autobiographical memories are usually about social interactions with parents.
- ☐ Research suggests that infantile amnesia occurs in some cultures but not in others and may be linked to children's social experiences.
- ☐ The development of autobiographical memory allows children to appreciate the fact that memories are an important part of their cultural experience.
- ☐ Children who have acquired a concept of the self and of various mental states are generally able to talk about their own past memories.

参考答案:

1. C
2. D
3. B
4. A
5. B
6. A
7. C
8. C
9. D
10. D
11. B
12. A
13. A
14. Although children ...
Research suggests ...
Children who ...

自传式记忆

回忆你的童年并尝试找出你最早的记忆。那时你多大？大多数人无法描述出有关三岁前经历的记忆，这种现象就叫做婴儿期遗忘。为什么会发生婴儿期遗忘这个问题已经引发了心理学家们数十年的兴趣，尤其是有大量的证据说明婴幼儿表现出具有令人惊讶的记忆能力。不少人发现理解自传式记忆，即对在某人自己的生活中发生的事件的记忆的一般特性可以为这个不解之谜提供一些重要的线索。**3到4岁**的儿童开始可以对自己过去经历过的事情给出相当长的具有连贯性的描述。是什么因素导致了这个发育的转折点。

也许对这个问题的解释可以追溯到具有影响力的瑞士心理学家 让·皮亚杰，他认为两岁以下的儿童与大于两岁的儿童回忆事件的方式有质的不同。根据这个思路，两岁的儿童发展出的语言能力可以使他们对事件的组织方式与婴儿基于动作的组织方式有根本的差异。事实上，一岁儿童的语言能力与他们一年后对事件的记忆有关。当研究人员让一岁的儿童们在第一次见到一个动作顺序后的一年模仿这个动作顺序，他们能否成功完成这个记忆任务与他们第一次看到这个事件时的语言能力相关。但是，即使是语言能力很差的儿童也显示出了记得该事件的证据，因此，语言能力可以促进记忆，但是记忆并不依赖于语言能力。

另有人提出在儿童能够讲述他们过去经历的事情之前，儿童需要对把自我当做一个心理实体有合理的认识。对自我的认识的发展在**1到2岁**之前非常明显，并在随后的几年中显示出迅速地细致化。根据这个假说，身体自我在时间上的连续性是出现自传式记忆的基础。

第三种可能是儿童在他们理解故事发生的一般形式，即叙述的结构以前无法描述他们自己的“生活故事”。有关叙述的知识来源于社会互动，尤其是父母给儿童讲故事以及父母尝试跟孩子聊聊孩子们过去经历的事情。当父母跟孩子们说起“昨天我们做了什么”或者“上周”或者“去年”时，他们就会引导儿童形成讲述往事的框架。他们还唤醒了孩子们的记忆，并且向孩子们传达了记忆是文化体验宝贵的一部分的信息。值得一提的是有些研究显示白种美国儿童比韩国儿童的童年记忆更早。此外，其它研究显示白种美国母亲与孩子交流过往的事情的次数是韩国母亲与孩子的三倍。因此，儿童具有的社会经验的类型是发展出自传式记忆的一个因素。

最后一种解释是儿童必须在他们能够讲述自己对过去的记忆前开始发展出一种“心理理论”——对他们自己或别人的心理状态（感觉、欲望、信仰和思想）概念的认识。一旦儿童能够回答诸如“记得是什么意思？”以及“知道某事或某物是什么意思？”等问题的时候，这就会促进他们可能发生的记忆。

可能上面描述的各种发育之间会相互交织并且相互影响。与父母聊聊往事可以加强自我认知的发展，举例来说，就像帮助儿童理解什么是“记得”一样。讲述自己的往事无疑代表了比简单的认出或回忆更为复杂的记忆。

Spartina

Spartina alterniflora, known as cordgrass, is a deciduous, perennial flowering plant native to the Atlantic coast and the Gulf Coast of the United States. It is the dominant native species of the lower salt marshes along these coasts, where it grows in the intertidal zone (the area covered by water some parts of the day and exposed others).

These natural salt marshes are among the most productive habitats in the marine environment. Nutrient-rich water is brought to the wetlands during each high tide, making a high rate of food production possible. As the seaweed and marsh grass leaves die, bacteria break down the plant material, and insects, small shrimplike organisms, fiddler crabs, and marsh snails eat the decaying plant tissue, digest it, and excrete wastes high in nutrients. Numerous insects occupy the marsh, feeding on living or dead cordgrass tissue, and redwing blackbirds, sparrows, rodents, rabbits, and deer feed directly on the cordgrass. Each tidal cycle carries plant material into the offshore water to be used by the subtidal organisms.

Spartina is an exceedingly competitive plant. It spreads primarily by underground stems; colonies form when pieces of the root system or whole plants float into an area and take root or when seeds float into a suitable area and germinate. *Spartina* establishes itself on substrates ranging from sand and silt to gravel and cobble and is tolerant of salinities ranging from that of near freshwater (0.05 percent) to that of salt water (3.5 percent). Because they lack oxygen, marsh sediments are high in sulfides that are toxic to most plants. *Spartina* has the ability to take up sulfides and convert them to sulfate, a form of sulfur that the plant can use; this ability makes it easier for the grass to colonize marsh environments. Another adaptive advantage is *Spartina*'s ability to use carbon dioxide more efficiently than most other plants.

These characteristics make *Spartina* a valuable component of the estuaries where it occurs naturally. The plant functions as a stabilizer and a sediment trap and as a nursery area for estuarine fish and shellfish. Once established, a stand of *Spartina* begins to trap sediment, changing the substrate elevation, and eventually the stand evolves into a high marsh system where *Spartina* is gradually displaced by higher-elevation, brackish-water species. As elevation increases, narrow, deep channels of water form throughout the marsh. Along the east coast *Spartina* is considered valuable for its ability to prevent erosion and marshland deterioration; it is also used for coastal restoration projects and the creation of new wetland sites.

Spartina was transported to Washington State in packing materials for oysters transplanted from the east coast in 1894. Leaving its insect predators behind, the cordgrass has been spreading slowly and steadily along Washington's tidal estuaries on the west coast, crowding out the native plants and drastically altering the landscape by trapping sediment. *Spartina* modifies tidal mudflats, turning them into high marshes inhospitable to the many fish and waterfowl that depend on the mudflats. It is already hampering the oyster harvest and the Dungeness crab fishery, and it interferes with the recreational use of beaches and waterfronts. *Spartina* has been transplanted to England and to New Zealand for land reclamation and shoreline stabilization. In New Zealand the plant has spread rapidly, changing mudflats with marshy fringes to extensive salt meadows and reducing the number and kinds of birds and animals that use the marsh.

Efforts to control *Spartina* outside its natural environment have included burning, flooding, shading plants with black canvas or plastic, smothering the plants with dredged materials or clay, applying herbicide, and mowing repeatedly. Little success has been reported in New Zealand and England; Washington State's management program

has tried many of these methods and is presently using the herbicide glyphosphate to control its spread. Work has begun to determine the feasibility of using insects as biological controls, but effective biological controls are considered years away. Even with a massive effort, it is doubtful that complete eradication of *Spartina* from nonnative habitats is possible, for it has become an integral part of these shorelines and estuaries during the last 100 to 200 years.

Paragraph 1: *Spartina alterniflora*, known as cordgrass, is a deciduous, perennial flowering plant native to the Atlantic coast and the Gulf Coast of the United States. It is the dominant native species of the lower salt marshes along these coasts, where it grows in the intertidal zone (the area covered by water some parts of the day and exposed others).

1. According to paragraph 1, each of the following is true of *Spartina alterniflora* EXCEPT:
- ☐ It rarely flowers in salt marshes.
 - ☐ It grows well in intertidal zones.
 - ☐ It is commonly referred to as cordgrass.
 - ☐ It occurs naturally along the Gulf Coast and the Atlantic coast of the United States.

Paragraph 2: These natural salt marshes are among the most productive habitats in the marine environment. Nutrient-rich water is brought to the wetlands during each high tide, making a high rate of food production possible. As the seaweed and marsh grass leaves die, bacteria break down the plant material, and insects, small shrimplike organisms, fiddler crabs, and marsh snails eat the decaying plant tissue, digest it, and excrete wastes high in nutrients. Numerous insects occupy the marsh, feeding on living or dead cordgrass tissue, and redwing blackbirds, sparrows, rodents, rabbits, and deer feed directly on the cordgrass. Each tidal cycle carries plant material into the offshore water to be used by the subtidal organisms.

2. According to paragraph 2, a major reason why natural salt marshes are so productive is that they are
- ☐ inhabited by long-lived seaweed and marsh grasses that reproduce gradually
 - ☐ kept clear of excess plant material by the tides
 - ☐ regularly supplied with high levels of nutrients
 - ☐ home to a wide variety of different species of grasses
3. Which of the sentences below best express the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
- ☐ Insects feed only on dead cordgrass, while most other marsh inhabitants feed on live cordgrass.
 - ☐ The marsh is a good habitat for insects, but a relatively poor one for birds and animals.
 - ☐ Although cordgrass provides food for birds and animals, it gives insects both food and a place to live.
 - ☐ Cordgrass provides food for numerous insects, birds, and other animals.

Paragraph 3: *Spartina* is an exceedingly competitive plant. It spreads primarily by underground stems; colonies form when pieces of the root system or whole plants float into an area and take root or when seeds float into a suitable area and germinate. *Spartina* establishes itself on substrates ranging from sand and silt to gravel and cobble and is tolerant of salinities ranging from that of near freshwater (0.05 percent) to that of salt water (3.5 percent). Because they lack oxygen, marsh sediments are high in sulfides that are toxic to most plants. *Spartina* has the ability to take up sulfides and convert them to sulfate, a form of sulfur that the plant can use; this ability makes it easier for the grass to colonize marsh environments. Another adaptive advantage is *Spartina's* ability to use carbon dioxide more efficiently than most other plants.

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4. What is the organizational structure of paragraph 3?
- ☐ It makes a general claim about *Spartina* and then provides specific evidence to defend that claim against objections to the claim.
 - ☐ It presents a general characterization of *Spartina* and then describes particular features on which this characterization is based.
 - ☐ It reports a widely held view about *Spartina* and then considers evidence both for and against that view.
 - ☐ It presents a general hypothesis about *Spartina* and then lists specific evidence that disputes that hypothesis.
5. The word "exceedingly" in the passage is closest in meaning to
- ☐ unusually
 - ☐ dangerously
 - ☐ surprisingly
 - ☐ highly
6. According to paragraph 3, one reason that ***Spanina*** is able to compete in marsh environments so successfully is its ability to
- ☐ alter the substrate in which it grows
 - ☐ convert sulfides into a usable form of sulfur
 - ☐ grow and produce seeds while floating on the surface of the water
 - ☐ produce carbon dioxide with great efficiency

Paragraph 4: These characteristics make *Spartina* a valuable component of the estuaries where it occurs naturally. The plant functions as a stabilizer and a sediment trap and as a nursery area for estuarine fish and shellfish. Once established, a stand of *Spartina* begins to trap sediment, changing the substrate elevation, and eventually the stand evolves into a high marsh system where *Spartina* is gradually displaced by higher-elevation, brackish-water species. As elevation increases, narrow, deep channels of water form throughout the marsh. Along the east coast *Spartina* is considered valuable for its ability to prevent erosion and marshland deterioration; it is also used for coastal restoration projects and the creation of new wetland sites.

7. Paragraph 4 suggests that where ***Spanina*** occurs naturally, an established stand of it will eventually
- ☐ create conditions in which it can no longer survive
 - ☐ get washed away by water flowing through the deep channels that form around it
 - ☐ become adapted to brackish water
 - ☐ take over other grass species growing in the area
8. According to paragraph 4, in its natural habitats, ***Spanina*** helps estuaries by
- ☐ controlling marshland decline
 - ☐ decreasing the substrate elevation
 - ☐ reducing the brackishness of the water
 - ☐ increasing the flow of water into the estuary

Paragraph 5: *Spartina* was transported to Washington State in packing materials for oysters transplanted from the east coast in 1894. Leaving its insect predators behind, the cordgrass has been spreading slowly and steadily along Washington's tidal estuaries on the west coast, crowding out the native plants and drastically altering the landscape by trapping sediment. *Spartina* modifies tidal mudflats, turning them into high marshes inhospitable to the many fish and waterfowl that depend on the mudflats. It is already hampering the oyster harvest and the Dungeness crab fishery, and it interferes with the recreational use of beaches and waterfronts. *Spartina* has been transplanted to England and to New Zealand for land reclamation and shoreline stabilization. In New Zealand the plant has spread rapidly,

changing mudflats with marshy fringes to extensive salt meadows and reducing the number and kinds of birds and animals that use the marsh.

9. The word "modifies" in the passage is closest in meaning to

- ☐ creates
- ☐ changes
- ☐ grows on
- ☐ breaks down

Paragraph 6: **Efforts** to control *Spartina* outside its natural environment have included burning, flooding, shading plants with black canvas or plastic, smothering the plants with dredged materials or clay, applying herbicide, and mowing repeatedly. Little success has been reported in New Zealand and England; Washington State's management program has tried many of these methods and is presently using the herbicide glyphosphate to control its spread. Work has begun to determine the feasibility of using insects as biological controls, but effective biological controls are considered years away. Even with a massive effort, it is doubtful that complete eradication of *Spartina* from nonnative habitats is possible, for it has become an integral part of these shorelines and estuaries during the last 100 to 200 years.

10. The word "**Efforts**" in the passage is closest in meaning to

- ☐ Laws
- ☐ Suggestions
- ☐ Attempts
- ☐ Failures

11. According to paragraph 5, *Spanina* negatively affects wildlife in estuaries by

- ☐ trapping fish and waterfowl in sediment
- ☐ preventing oysters from transplanting successfully
- ☐ turning mudflats into high marshes and salt meadows
- ☐ expanding the marshy fringes of salt meadows

12. According to paragraph 6, each of the following methods has been used in attempts to control *Spanina* EXCEPT

- ☐ flooding plants
- ☐ cutting plants down repeatedly
- ☐ applying herbicides
- ☐ introducing predatory insects

Spartina is an exceedingly competitive plant. Ⓐ It spreads primarily by underground stems; colonies form when pieces of the root system or whole plants float into an area and take root or when seeds float into a suitable area and germinate. Ⓑ *Spartina* establishes itself on substrates ranging from sand and silt to gravel and cobble and is tolerant of salinities ranging from that of near freshwater (0.05 percent) to that of salt water (3.5 percent). Ⓒ Because they lack oxygen, marsh sediments are high in sulfides that are toxic to most plants. Ⓓ *Spartina* has the ability to take up sulfides and convert them to sulfate, a form of sulfur that the plant can use; this ability makes it easier for the grass to colonize marsh environments. Another adaptive advantage is *Spartina*'s ability to use carbon dioxide more efficiently than most other plants.

13. Look at the four squares Ⓐ Ⓑ Ⓒ and Ⓓ that indicate where the following sentence could be added to the passage.

***Spartina* is particularly able to tolerate high salinities because salt glands on the surface of the leaves remove the salt from the plant sap.**

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the *THREE* answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

***Spanina alrezniflora*, or cordgrass, is the dominant native species in salt marshes along the Atlantic coast and the Gulf Coast of the United States.**

Click on 3 answers.

- ☐ *Spartina* is very well adapted to conditions in salt marshes, where it plays a valuable role in stabilizing them and making them highly productive marine habitats.
- ☐ *Spartina* expands by growing root systems that float on the water's surface and descend underground, where it finds the nutrients that it needs to germinate.
- ☐ As a result of its spread in Washington State over the past hundred years, *Spartina* has now become a threat to native oysters by releasing sediments that contain sulfides into the waters.
- ☐ The dead leaves of *Spartina* become food for a wide variety of marine organisms.
- ☐ Outside its native regions, *Spartina* can pose serious problems by turning mudflats into high marshes that are inhospitable to many native fish and birds.
- ☐ *Spartina* has physiological adaptations that allow it to grow in environments where other plants cannot, making it a very strong competitor that is difficult to control once it is established.

参考答案:

1. A
2. C
3. D
4. B
5. D
6. B
7. A
8. A
9. B
10. C
11. C
12. D
13. C
14. *Spartina* is very well ...
Outside its native regions ...
Spartina has physiological ...

米草属植物

互花米草，俗称网茅，是一种冬季枯萎的多年生开花植物，原产自大西洋沿岸和美国的墨西哥湾。它是这些海岸地区低海拔盐碱地的优势本地种，生长于潮汐带（有时淹没在水中，有时暴露在空气中的区域）。

这些天然的盐碱地位于海洋环境下最肥沃的生境中。涨潮时会给沼泽带来营养丰富的海水，使得食物有可能获得高产。随着海草和沼泽禾草叶子的死亡，细菌将植物体分解，昆虫、小型虾状浮游生物、招潮蟹和沼泽蜗牛吃掉了腐烂的植物组织，消化后排出富含营养的排泄物。沼泽里生活着无数的昆虫，它们以活着或死去的网茅组织为食，红翼歌鸫、麻雀、啮齿动物、兔子以及鹿都直接食用网茅。每一个潮汐周期都会将植物带到近海海水中，它们可以被潮水下的生物所利用。

米草属植物是极具竞争力的植物。它主要通过地下茎向四周扩展，当根系或整株植物漂到一个区域并扎下根来，或者当种子漂到一个适合的地方并发芽，就会形成新的群落。从泥沙地到卵砾石地，米草属植物都能生长，其耐盐度从接近淡水（0.05%）到盐水（3.5%）。由于沼泽沉积物里缺乏氧气，因而含有很多的硫化物，对多数植物而言是有毒的。米草属植物具有能够吸收硫化物并将其转换为硫酸盐——一种植物可以利用的硫形式的能力。这种能力使得米草属植物能够在沼泽环境中生存。另一个适应性优势就是米草属植物比其它植物能更为有效的利用二氧化碳的能力。

这些特征使得在河口处自然生长出的米草属植物成为了该地重要的组成部分。植物起到了稳定器和沉积物收集器的作用，而且还充当了河口鱼类和贝类的哺育场所。一旦落地生根，一片米草属植物就开始截留沉积物，改变基质的海拔高度，最终这片米草属植物会逐渐被更高海拔的微咸淡水植物所取代，发展成了一个高海拔的沼泽系统。随着高海拔沼泽的升高，沼泽中会遍布狭窄深凹的水道。在东海岸，人们认为米草属非常有用，因为它有防止侵蚀和防止沼泽退化的能力，而且它还被用于海岸恢复计划和构筑新的湿地。

1894 年，为了将牡蛎从东海岸转移到华盛顿州，米草属植物被打包运往华盛顿州。由于缺少捕食性昆虫，网茅沿着西海岸华盛顿州的潮汐河口缓慢而稳定地传播开来，排挤本地植物，并通过截留沉积物极大地改变了当地的景观。米草属植物改造了沿海滩涂，将它们转变成不适合很多依赖于滩涂的鱼类和水禽生活的高海拔沼泽。米草属植物已经妨碍了牡蛎的打捞以及珍宝蟹的养殖，它干扰了海滩和海滨的休憩用途。人们将米草属植物移栽到英国和新西兰用于改良土地以及稳定海岸线。在新西兰，米草属植物扩散得很快，它改变了沼泽，将沼泽地的边缘变成了广阔的盐渍草地，并减少了在沼泽生活的鸟类和动物的数量。

为了在米草属植物自然生境以外控制它的扩散，人们尝试了焚烧、水淹、用黑色的帆布或塑料布遮挡阳光、用疏浚物料或者粘土使其窒息、喷撒除草剂以及反复割草的方法。在新西兰和英国只取得了微不足道的成效，华盛顿州的管理项目尝试了很多此类方法，目前正在使用除草剂草甘膦控制它的传播。已经开展了相关工作确定用昆虫进行生物防止的有效性，但是真正能够采取有效的生物防治还需要很多年。即使是付出巨大的努力，我们仍然怀疑完全从非原生境中根除米草属植物的可能性，因为在过去的 100 到 200 年间，它已经成为了这些海岸线地带和河口的主要组成部分。

The Birth of Photography

Perceptions of the visible world were greatly altered by the invention of photography in the middle of the nineteenth century. In particular, and quite logically, the art of painting was forever changed, though not always in the ways one might have expected. The realistic and naturalistic painters of the mid- and late-nineteenth century were all intently aware of photography—as a thing to use, to learn from, and react to.

Unlike most major inventions, photography had been long and impatiently awaited. The images produced by the camera obscura, a boxlike device that used a pinhole or lens to throw an image onto a ground-glass screen or a piece of white paper, were already familiar—the device had been much employed by topographical artists like the Italian painter Canaletto in his detailed views of the city of Venice. What was lacking was a way of giving such images permanent form. This was finally achieved by Louis Daguerre (1787-1851), who perfected a way of fixing them on a silvered copper plate. His discovery, the "daguerreotype," was announced in 1839.

A second and very different process was patented by the British inventor William Henry Talbot (1800-1877) in 1841. Talbot's "calotype" was the first negative-to-positive process and the direct ancestor of the modern photograph. The calotype was revolutionary in its use of chemically treated paper in which areas hit by light became dark in tone, producing a negative image. This "negative," as Talbot called it, could then be used to print multiple positive images on another piece of treated paper.

The two processes produced very different results. The daguerreotype was a unique image that reproduced what was in front of the camera lens in minute, unselective detail and could not be duplicated. The calotype could be made in series, and was thus the equivalent of an etching or an engraving. Its general effect was soft edged and tonal.

One of the things that most impressed the original audience for photography was the idea of authenticity. Nature now seemed able to speak for itself, with a minimum of interference. The title Talbot chose for his book, *The Pencil of Nature* (the first part of which was published in 1844), reflected this feeling. Artists were fascinated by photography because it offered a way of examining the world in much greater detail. They were also afraid of it, because it seemed likely to make their own efforts unnecessary.

Photography did indeed make certain kinds of painting obsolete—the daguerreotype virtually did away with the portrait miniature. It also made the whole business of making and owning images democratic. Portraiture, once a luxury for the privileged few, was suddenly well within the reach of many more people.

In the long term, photography's impact on the visual arts was far from simple. Because the medium was so prolific, in the sense that it was possible to produce a multitude of images very cheaply, it was soon treated as the poor relation of fine art, rather than its destined successor. Even those artists who were most dependent on photography became reluctant to admit that they made use of it, in case this compromised their professional standing.

The rapid technical development of photography—the introduction of lighter and simpler equipment, and of new emulsions that coated photographic plates, film, and paper and enabled images to be made at much faster speeds—had some unanticipated consequences. Scientific experiments made by photographers such as Eadweard Muybridge (1830-1904) and Etienne-Jules Marey (1830-1904) demonstrated that the movements of both humans and animals differed widely from the way they had been traditionally represented in art. Artists, often reluctantly, were forced to accept the evidence provided by the camera. The new candid photography—unposed pictures that were made when the subjects were unaware that their pictures were being taken—confirmed these scientific results, and at the same time,

thanks to the radical cropping (trimming) of images that the camera often imposed, suggested new compositional formats. The accidental effects obtained by candid photographers were soon being copied by artists such as the French painter Degas.

Paragraph 1: Perceptions of the visible world were greatly altered by the invention of photography in the middle of the nineteenth century. In particular, and quite logically, the art of painting was forever changed, though not always in the ways one might have expected. The realistic and naturalistic painters of the mid- and late-nineteenth century were all intently aware of photography—as a thing to use, to learn from, and react to.

Paragraph 2: Unlike most major inventions, photography had been long and impatiently awaited. The images produced by the camera obscura, a boxlike device that used a pinhole or lens to throw an image onto a ground-glass screen or a piece of white paper, were already familiar—the device had been much employed by topographical artists like the Italian painter Canaletto in his detailed views of the city of Venice. What was lacking was a way of giving such images permanent form. This was finally achieved by Louis Daguerre (1787-1851), who perfected a way of fixing them on a silvered copper plate. His discovery, the "daguerreotype," was announced in 1839.

1. What can be inferred from paragraphs 1 and 2 about the effect of photography on nineteenth-century painting?
- ☐ Photography did not significantly change the way people looked at reality.
 - ☐ Most painters used the images of the camera obscura in preference to those of the daguerreotype.
 - ☐ Painters who were concerned with realistic or naturalistic representation were particularly influenced by photography.
 - ☐ Artists used the long-awaited invention of photography in just the ways they had expected to.

Paragraph 4: The two processes produced very different results. The daguerreotype was a unique image that reproduced what was in front of the camera lens in minute, unselective detail and could not be duplicated. The calotype could be made in series, and was thus the equivalent of an etching or an engraving. Its general effect was soft edged and tonal.

2. The word "duplicated" in the passage is closest in meaning to
- ☐ copied
 - ☐ replaced
 - ☐ handled
 - ☐ clarified
3. The phrase "Its general effect" in the passage refers to
- ☐ the camera lens
 - ☐ the calotype
 - ☐ the etching
 - ☐ the engraving

Paragraph 2: Unlike most major inventions, photography had been long and impatiently awaited. The images produced by the camera obscura, a boxlike device that used a pinhole or lens to throw an image onto a ground-glass screen or a piece of white paper, were already familiar—the device had been much employed by topographical artists like the Italian painter Canaletto in his detailed views of the city of Venice. What was lacking was a way of giving such images permanent form. This was finally achieved by Louis Daguerre (1787-1851), who perfected a way of fixing them on a silvered copper plate. His discovery, the "daguerreotype," was announced in 1839.

Paragraph 3: A second and very different process was patented by the British inventor William Henry Talbot (1800-1877) in 1841. Talbot's "calotype" was the first negative-to-positive process and the direct ancestor of the modern photograph. The calotype was revolutionary in its use of chemically treated paper in which areas hit by light became dark in tone, producing a negative image. This "negative," as Talbot called it, could then be used to print multiple positive images on another piece of treated paper.

4. According to paragraphs 2 and 3 which of the following did the daguerreotype and the calotype have in common?
- ☐ They were equally useful for artists.
 - ☐ They could be reproduced.
 - ☐ They produced a permanent image
 - ☐ They were produced on treated paper.

Paragraph 5: One of the things that most impressed the original audience for photography was the idea of authenticity. Nature now seemed able to speak for itself, with a minimum of interference. The title Talbot chose for his book, *The Pencil of Nature* (the first part of which was published in 1844), reflected this feeling. Artists were fascinated by photography because it offered a way of examining the world in much greater detail. They were also afraid of it, because it seemed likely to make their own efforts unnecessary.

5. The word "authenticity" in the passage is closest in meaning to
- ☐ improvement
 - ☐ practicality
 - ☐ genuineness
 - ☐ repetition

Paragraph 6: Photography did indeed make certain kinds of painting obsolete—the daguerreotype virtually did away with the portrait miniature. It also made the whole business of making and owning images democratic. Portraiture, once a luxury for the privileged few, was suddenly well within the reach of many more people.

6. What point does the author make in paragraph 6?
- ☐ Paintings became less expensive because of competition with photography.
 - ☐ Photography, unlike painting, was a type of portraiture that even ordinary people could afford.
 - ☐ Every style of painting was influenced by the invention of photography.
 - ☐ The daguerreotype was more popular than the calotype.

Paragraph 7: In the long term, photography's impact on the visual arts was far from simple. Because the medium was so prolific, in the sense that it was possible to produce a multitude of images very cheaply, it was soon treated as the poor relation of fine art, rather than its destined successor. Even those artists who were most dependent on photography became reluctant to admit that they made use of it, in case this compromised their professional standing.

7. The word "reluctant" in the passage is closest in meaning to
- ☐ unable
 - ☐ embarrassed
 - ☐ unlikely
 - ☐ unwilling
8. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

-
- Photography did not replace other fine arts because people felt the image looked cheap in relation to the other arts.
 - Photography was not considered a true art because people could use it to create many images cheaply.
 - Photography was so cheap and readily available that it could be purchased by people who were too poor to purchase fine art.
 - Photography not only spread quickly but also was a cheap art form and so became true successor of fine arts rather than its poor relation.

Paragraph 8: The rapid technical development of photography—the introduction of lighter and simpler equipment, and of new emulsions that coated photographic plates, film, and paper and enabled images to be made at much faster speeds—had some **unanticipated** consequences. Scientific experiments made by photographers such as Eadweard Muybridge (1830-1904) and Etienne-Jules Marey (1830-1904) demonstrated that the movements of both humans and animals differed widely from the way they had been traditionally represented in art. Artists, often reluctantly, were forced to accept the evidence provided by the camera. The new candid photography—unposed pictures that were made when the subjects were unaware that their pictures were being taken—confirmed these scientific results, and at the same time, thanks to the radical cropping (trimming) of images that the camera often imposed, suggested new compositional formats. The **accidental** effects obtained by candid photographers were soon being copied by artists such as the French painter Degas.

9. The word "**unanticipated**" in the passage is closest in meaning to
- indirect
 - not expected
 - unquestionable
 - beneficial
10. The word "**accidental**" in the passage is closest in meaning to
- surprising
 - unintentional
 - realistic
 - unusual
11. Which of the following is mentioned in paragraph 8 as a benefit that artists derived from photography?
- It inspired artists to use technological themes in their painting.
 - It lent prestige to those artists who used photographs as models for paintings
 - It provided artists with new types of equipment to speed up the painting process.
 - It motivated artists to think about new ways to compose images in their paintings.
12. It can be inferred from paragraph 8 that one effect that photography had on painting was that it
- provided painters with new insights into how humans and animals actually move
 - showed that representing movement could be as interesting as portrait art
 - increased the appeal of painted portraiture among the wealthy
 - influenced artists to improve techniques for painting faster

Unlike most major inventions, photography had been long and impatiently awaited. The images produced by the camera obscura, a boxlike device that used a pinhole or lens to throw an image onto a ground-glass screen or a piece of white paper, were already familiar—the device had been much employed by topographical artists like the Italian painter Canaletto in his detailed views of the city of Venice. What was lacking was a way of giving such images permanent form. This was finally achieved by Louis Daguerre (1787-1851), who perfected a way of fixing them on a

silvered copper plate. His discovery, the "daguerreotype," was announced in 1839. ■

A second and very different process was patented by the British inventor William Henry Talbot (1800-1877) in 1841. ■ Talbot's "calotype" was the first negative-to-positive process and the direct ancestor of the modern photograph. The calotype was revolutionary in its use of chemically treated paper in which areas hit by light became dark in tone, producing a negative image. ■ This "negative," as Talbot called it, could then be used to print multiple positive images on another piece of treated paper. ■

13. Look at the four squares HI that indicate where the following sentence could be added to the passage

Although his process produced permanent images, each was unique and no reproduction of the picture was possible.

Where would the sentence best fit?

Click on a square [■] to add the sentence to the passage.

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage **This question is worth 2 points.**

Drag your answer choices to the spaces where they belong. To remove an answer choice, click on it To review the passage, click **VIEW TEXT**.

The invention of photography had a significant impact on the art of painting in the nineteenth century.

- ☐
- ☐
- ☐

Answer Choices

- ☐ For a brief time, artists preferred not to paint natural or realistic images that would have to compete with photographs.
- ☐ Before photography, Canaletto had used the camera obscura to project scenes onto a paper or glass plate.
- ☐ The photographic processes of Louis Daguerre and William Henry Talbot both made permanent images, but only Talbot's process allowed making multiple copies.
- ☐ The work of Eadweard Muybridge and Etienne-Jules Marey established photography both as a science and as an art.
- ☐ Photography made accurate images widely and inexpensively available, but this popular success also had the effect of lowering its perceived value in relation to the fine arts.
- ☐ Photography eliminated the painted portrait miniature, led artists to accurately represent movement, and affected pictorial composition, but did not replace traditional visual arts.

参考答案:

1. C
2. A
3. B
4. C
5. C
6. B
7. D
8. B
9. B
10. B
11. D
12. A
13. A
14. Before photography ...
The photographic ...
Photography eliminated ...

摄影术的诞生

十九世纪中叶，摄影术的发明极大的改变了人们对可视世界的认知。尤其是它自然而然地使绘画艺术发生了永久性的改变，虽然并不总是以我们预期的方式。十九世纪中后期的现实主义和自然主义画家都高度关注摄影术，他们认为摄影术是一门可以为他们所用，从中有所借鉴，而且不能被忽视的技术。

与其它重要的发明有所不同的是，人们长期以来一直迫切地期待着摄影术的发明。其实当时针孔照相机已经为大家所熟识，它是一种使用小孔或透镜将影像投射到毛玻璃屏或一张白纸上的盒状设备，这种设备已经为很多地貌风景画家所用，正如意大利画家卡纳莱托创作的威尼斯城的精致风景画一样。真正缺少的是将这些景象永久保存下来的方式。路易斯·达盖尔（1787-1851）最终做到了这点，他完善了将影像固定到镀银铜板上的方法。是他发明了“达盖尔照相法”，并于1839年将这项发明公诸于世。

英国发明家威廉姆·亨利·塔尔波特（1800-1877）于1841年取得了另一种截然不同的照相法的专利。塔尔波特的“卡罗式摄影法”是第一种用负片洗印正片的方法，这种方法是现代照片的直接鼻祖。卡罗式摄影法革命性地使用了化学处理的纸片，纸片上受到光照射的区域的色调会变暗于是产生了负像。这种被塔尔波特称之为“负片”的东西随后会被用于在另一张化学处理的纸片上洗印多张正像。

这两种方法产生了极为不同的结果。达盖尔照相法是复制照相机镜头前端微小的、非选择性的细节得到唯一一张影像，不可以加印。而卡罗式摄影法可以洗出多张照片，因此相当于蚀刻术或雕刻术，其整体的效果是边缘和色调模糊。

摄影术给最初接触它的观众留下的最深刻的印象之一是真实性。自从有了摄影术，大自然就可以向人们传达自己，至少可以表达所受的干扰。塔尔波特为他的书所选的书名《自然的画笔》（该书的第一部分发表于1844年）就表达了这种感触。艺术家沉醉于摄影，因为摄影为他们提供了一种可能更加地细致审视这个世界的方法。他们也很害怕摄影，因为摄影仿佛让他们的努力变得毫无意义。

摄影术的确使某些形式的绘画被淘汰，达盖尔照相法几乎取代了袖珍肖像。它还使拍照和拥有属于自己的相片变得平民化。肖像这个一度只是少数的贵族的奢侈品，突然就变成了很多人触手可及的事物。

从长远角度看，摄影术对视觉艺术的影响要复杂得多。因为介质很丰富，从这种意义上来说就有可能很廉价地获得一堆影像，因此摄影术很快就被当成是艺术品廉价的替代物，而不是取而代之。即使是那些对摄影术最为依赖的艺术家也不愿意承认他们使用过摄影术，害怕这会影响到他们的专业地位。

摄影术技术上的迅速发展，包括使用更轻便简单的仪器，在照相底片、胶卷和相纸上涂以新型感光乳剂，加快成像速度，产生了一些意外之外的结果。摄影师，例如爱德华德·麦布里奇（1830-1904）及艾蒂安-朱尔·马雷（1830-1904）进行的科学实验证明人类和动物的运动与我们通常在艺术品中表现的有巨大差异。艺术家往往是勉强地被强迫接受相机所提供的证据。新出现的堪的派摄影是在拍摄对象不知情时抓拍出的照片，而不是摆拍，这种摄影验证了科学家们得出的结果，与此同时，还要感谢相机对影像进行的彻底裁剪（修剪）提供了新的创作版式。艺术家们比如法国画家德加迅速采纳了堪的派摄影师们获得的意外效果。

The Allende Meteorite

Sometime after midnight on February 8, 1969, a large, bright meteor entered Earth's atmosphere and broke into thousands of pieces, plummeted to the ground, and scattered over an area 50 miles long and 10 miles wide in the state of Chihuahua in Mexico. The first meteorite from this fall was found in the village of Pueblito de Allende. Altogether, roughly two tons of meteorite fragments were recovered, all of which bear the name Allende for the location of the first discovery.

Individual specimens of Allende are covered with a black, glassy crust that formed when their exteriors melted as they were slowed by Earth's atmosphere. When broken open, Allende stones are revealed to contain an assortment of small, distinctive objects, spherical or irregular in shape and embedded in a dark gray matrix (binding material), which were once constituents of the solar nebula—the interstellar cloud of gas and dust out of which our solar system was formed.

The Allende meteorite is classified as a chondrite. Chondrites take their name from the Greek word *chondros*—meaning "seed"—an allusion to their appearance as rocks containing tiny seeds. These seeds are actually chondrules: millimeter-sized melted droplets of silicate material that were cooled into spheres of glass and crystal. A few chondrules contain grains that survived the melting event, so these enigmatic chondrules must have formed when compact masses of nebular dust were fused at high temperatures—approaching 1,700 degrees Celsius—and then cooled before these surviving grains could melt. Study of the textures of chondrules confirms that they cooled rather quickly, in times measured in minutes or hours, so the heating events that formed them must have been localized. It seems very unlikely that large portions of the nebula were heated to such extreme temperatures, and huge nebula areas could not possibly have lost heat so fast. Chondrules must have been melted in small pockets of the nebula that were able to lose heat rapidly. The origin of these peculiar glassy spheres remains an enigma.

Equally perplexing constituents of Allende are the refractory inclusions: irregular white masses that tend to be larger than chondrules. They are composed of minerals uncommon on Earth, all rich in calcium, aluminum, and titanium, the most refractory (resistant to melting) of the major elements in the nebula. The same minerals that occur in refractory inclusions are believed to be the earliest-formed substances to have condensed out of the solar nebula. However, studies of the textures of inclusions reveal that the order in which the minerals appeared in the inclusions varies from inclusion to inclusion, and often does not match the theoretical condensation sequence for those metals.

Chondrules and inclusions in Allende are held together by the chondrite matrix, a mixture of fine-grained, mostly silicate minerals that also includes grains of iron metal and iron sulfide. At one time it was thought that these matrix grains might be pristine nebular dust, the sort of stuff from which chondrules and inclusions were made. However, detailed studies of the chondrite matrix suggest that much of it, too, has been formed by condensation or melting in the nebula, although minute amounts of surviving interstellar dust are mixed with the processed materials.

All these diverse constituents are aggregated together to form chondritic meteorites, like Allende, that have chemical compositions much like that of the Sun. To compare the compositions of a meteorite and the Sun, it is necessary that we use ratios of elements rather than simply the abundances of atoms. After all, the Sun has many more atoms of any element, say iron, than does a meteorite specimen, but the ratios of iron to silicon in the two kinds of matter might be comparable. The compositional similarity is striking. The major difference is that Allende is depleted in the most volatile elements, like hydrogen, carbon, oxygen, nitrogen, and the noble gases, relative to the Sun. These are the elements that tend to form gases even at very low temperatures. We might think of chondrites as samples of distilled Sun, a sort of solar sludge from which only gases have been removed. Since practically all the solar system's

mass resides in the Sun, this similarity in chemistry means that chondrites have average solar system composition, except for the most volatile elements; they are truly lumps of nebular matter, probably similar in composition to the matter from which planets were assembled.

Paragraph 1: Sometime after midnight on February 8, 1969, a large, bright meteor entered Earth's atmosphere and broke into thousands of pieces, plummeted to the ground, and scattered over an area 50 miles long and 10 miles wide in the state of Chihuahua in Mexico. The first meteorite from this fall was found in the village of Pueblito de Allende. Altogether, roughly two tons of meteorite fragments were recovered, all of which bear the name Allende for the **location** of the first discovery.

1. The word "**location**" in the passage is closest in meaning to
 - ☐ sight
 - ☐ sake
 - ☐ success
 - ☐ place
2. Which of the following can be inferred from paragraph 1 about the large meteor that entered Earth's atmosphere on February 8, 1969?
 - ☐ It was almost ten miles wide.
 - ☐ It was the biggest meteor ever to hit Mexico.
 - ☐ It weighed more than two tons.
 - ☐ It broke into more pieces than most meteors do.

Paragraph 2: Individual specimens of Allende are covered with a black, glassy crust that formed when their exteriors melted as they were slowed by Earth's atmosphere. **When broken open, Allende stones are revealed to contain an assortment of small, distinctive objects, spherical or irregular in shape and embedded in a dark gray matrix (binding material), which were once constituents of the solar nebula—the interstellar cloud of gas and dust out of which our solar system was formed.**

3. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
 - ☐ Allende meteorites were formed when constituents of the interstellar cloud of gas and dust got trapped inside small, roughly spherical objects and these objects became bound together in a dark gray matrix.
 - ☐ Inside Allende meteorites is a dark gray matrix that binds together small spherical or irregular objects formed from the interstellar cloud of gas and dust out of which the solar system was made.
 - ☐ By breaking open Allende meteorites, scientists were able to find out what the solar nebula was made of.
 - ☐ Allende meteorites were filled with material formed almost entirely from interstellar gas and dust.

Paragraph 3: The Allende meteorite is classified as a chondrite. Chondrites take their name from the Greek word *chondros*—meaning "seed"—an **allusion** to their appearance as rocks containing tiny seeds. These seeds are actually chondrules: millimeter-sized melted droplets of silicate material that were cooled into spheres of glass and crystal. A few chondrules contain grains that survived the melting event, so these **enigmatic** chondrules must have formed when compact masses of nebular dust were fused at high temperatures—approaching 1,700 degrees Celsius—and then cooled before these surviving grains could melt. Study of the textures of chondrules confirms that they cooled rather quickly, in times measured in minutes or hours, so the heating events that formed them must have been localized. It seems very unlikely that large portions of the nebula were heated to such extreme temperatures, and huge nebula areas could not

possibly have lost heat so fast. Chondrules must have been melted in small pockets of the nebula that were able to lose heat rapidly. The origin of these peculiar glassy spheres remains an enigma.

4. The word "allusion" in the passage is closest in meaning to
- ☐ addition
 - ☐ modification
 - ☐ resemblance
 - ☐ reference
5. The word "enigmatic" in the passage is closest in meaning to
- ☐ dangerous
 - ☐ mysterious
 - ☐ interesting
 - ☐ surprising
6. According to paragraph 3, what does the presence of grains inside some of the chondrules indicate?
- ☐ The chondrules were formed of silicate material.
 - ☐ The chondrules were formed at high temperatures and then cooled rapidly.
 - ☐ The grains were formed in huge areas of the solar nebula
 - ☐ The grains were formed after the chondrules were fused together into chondrites.

Paragraph 4: Equally perplexing constituents of Allende are the refractory inclusions: irregular white masses that tend to be larger than chondrules. They are composed of minerals uncommon on Earth, all rich in calcium, aluminum, and titanium, the most refractory (resistant to melting) of the major elements in the nebula. The same minerals that occur in refractory inclusions are believed to be the earliest-formed substances to have condensed out of the solar nebula. However, studies of the textures of inclusions reveal that the order in which the minerals appeared in the inclusions varies from inclusion to inclusion, and often does not match the theoretical condensation sequence for those metals.

7. According to paragraph 4, all of the following are true about the minerals found in the refractory inclusions EXCEPT:
- ☐ These minerals are among the most resistant to melting of all the major elements in the solar nebula.
 - ☐ These minerals are believed to be some of the first elements to have condensed out of the solar nebula.
 - ☐ These minerals are among the least commonly found elements on Earth.
 - ☐ These elements occur in the order that scientists would have predicted.

Paragraph 5: Chondrules and inclusions in Allende are held together by the chondrite matrix, a mixture of fine-grained, mostly silicate minerals that also includes grains of iron metal and iron sulfide. At one time it was thought that these matrix grains might be **pristine** nebular dust, the sort of stuff from which chondrules and inclusions were made. However, detailed studies of the chondrite matrix suggest that much of it, too, has been formed by condensation or melting in the nebula, although minute amounts of surviving interstellar dust are mixed with the processed materials.

8. The word "pristine" in the passage is closest in meaning to
- ☐ pure
 - ☐ solid
 - ☐ ordinary
 - ☐ trapped

9. According to paragraph 5, which of the following is indicated by studies of the mixture holding the inclusions together?

- ☐ Large amounts of this material were formed by condensation or melting in the nebula.
- ☐ This material contains more iron and iron sulfide than had previously been thought.
- ☐ This material is very similar to the material from which the refractory inclusions are made
- ☐ The grains in this material are made from the same elements as chondrules are.

Paragraph 6: All these diverse constituents are aggregated together to form chondritic meteorites, like Allende, that have chemical compositions much like that of the Sun. To compare the compositions of a meteorite and the Sun, it is necessary that we use ratios of elements rather than simply the abundances of atoms. After all, the Sun has many more atoms of any element, say iron, than does a meteorite specimen, but the ratios of iron to silicon in the two kinds of matter might be comparable. The compositional similarity is striking. The major difference is that Allende is depleted in the most volatile elements, like hydrogen, carbon, oxygen, nitrogen, and the noble gases, relative to the Sun. These are the elements that tend to form gases even at very low temperatures. We might think of chondrites as samples of distilled Sun, a sort of solar sludge from which only gases have been removed. Since practically all the solar system's mass resides in the Sun, this similarity in chemistry means that chondrites have average solar system composition, except for the most volatile elements; they are truly lumps of nebular matter, probably similar in composition to the matter from which planets were assembled.

10. In paragraph 6, why does the author mention that "the Sun has many more atoms of any element, say iron, than does a meteorite specimen"?

- ☐ To show how difficult it is to compare the composition of a meteorite with that of the Sun
- ☐ To explain why a comparison of the compositions of a meteorite and of the Sun has to be done in terms of ratios of elements
- ☐ To identify the most common element in both the Sun and meteorite specimens
- ☐ To emphasize how much larger the Sun is than any meteorite specimen is

11. According to paragraph 6, the composition of chondritic meteorites differs from the composition of the Sun primarily in

- ☐ containing nebular matter
- ☐ containing many fewer atoms of iron
- ☐ the relative amount of volatile elements
- ☐ the ratio of iron to silicon

12. According to paragraph 6, what is the significance of the similarity in composition between chondrites and the Sun?

- ☐ It indicates what the matter from which planets were formed was probably like.
- ☐ It may explain how the Sun originally developed.
- ☐ It helps scientists estimate the variations in the chemical composition of different meteors.
- ☐ It suggests that most meteorites may contain large quantities of volatile elements.

Equally perplexing constituents of Allende are the refractory inclusions: irregular white masses that tend to be larger than chondrules. ■ They are composed of minerals uncommon on Earth, all rich in calcium, aluminum, and titanium, the most refractory (resistant to melting) of the major elements in the nebula. ■ The same minerals that occur in refractory inclusions are believed to be the earliest-formed substances to have condensed out of the solar nebula. ■ However, studies of the textures of inclusions reveal that the order in which the minerals appeared in the inclusions varies from inclusion to inclusion, and often does not match the theoretical condensation sequence for those

metals. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage

It is therefore still unclear if all inclusions were formed in the same way.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Studies of the Allende meteorite provided information about the composition of chondritic meteorites and their possible origin.

- ☐
- ☐
- ☐

Answer Choices

- ☐ When Allende entered Earth's atmosphere, it broke into thousands of pieces called chondrites because they look like glassy, black seeds.
- ☐ The mineral content of chondrules suggests that they were probably formed in isolated regions of the nebula that remained much hotter than the rest.
- ☐ Chondrules are tiny, millimeter-sized drops of silicate materials that probably formed when lumps of nebular dust were fused at extremely high temperatures and then quickly cooled.
- ☐ Irregularly shaped inclusions in Allende are composed of minerals that are resistant to melting and are believed to be the earliest minerals to have condensed out of the nebula.
- ☐ The matrix that holds the chondrules and inclusions together in Allende consists mainly of grains of nebular dust that were trapped inside the meteor before they could be melted.
- ☐ Except for being depleted in volatile elements, chondritic meteorites are probably very similar in composition to the matter from which planets were assembled.

参考答案:

1. D
2. C
3. B
4. D
5. B
6. B
7. D
8. A
9. A
10. B
11. C
12. A
13. D
14. The mineral content ...
The matrix that ...
Except for being ...

阿伦德陨星

在 1969 年 2 月 8 日子夜后的某一时刻，一颗巨大的闪亮流星划破了地球的大气层，碎成无数的碎块坠落到地面，散布在墨西哥奇瓦瓦州境内长 50 英里宽 10 英里的区域内。这次坠落为人们发现的第一块陨石是位于皮柏里托·德·阿伦德村。总共大约找到了 2 吨的陨星碎片，所有的碎片都是以首次发现的所在地阿伦德命名。

每块阿伦德样本都覆盖着黑色的、玻璃样的熔壳，这层熔壳是在它们的外表面与地球大气层摩擦减速中熔化形成的。把阿伦德陨石破开发现里面含有各种各样细小的、与众不同的物体，这些物体球状或者不规则，嵌在深灰色的基质（结合物质）中，它们曾是太阳星云——形成我们的太阳系的由气体和尘埃组成的星级云团一部分。

阿伦德陨星属于球粒陨石。球粒陨石的名字是源于希腊语中的单词“**chondros**”，意思是种子，这是指它们的外观看起来仿佛是岩石中镶嵌着细小的种子。这些种子实际上是陨石球粒：毫米级的熔融硅酸盐物质小液滴冷却而成的玻璃球和水晶球。少数陨石球粒含有未遭熔化的颗粒，所以这些神秘的陨石球粒肯定是在接近 1700 摄氏度的高温下熔化的星云尘埃致密团块中形成的，随后再这些团块在幸存的颗粒尚未熔化之前就冷却了。对陨石球粒质地的研究确认它们的确是以极快的速度冷却的，短则几分钟，长则数小时，所以形成陨石球粒的高温事件肯定是限于局部的。看起来极不可能是星云的大部分遭遇了如此极端的高温，大部分区域不可能很快的散热。陨石球粒肯定是在星云内部能够快速散热的小型袋状结构处被熔化的。这些奇特的玻璃球目前仍是未解之谜。

同样令人困惑的是阿伦德陨星的成分是耐高温的内含物：比陨石球粒要大些的不规则的白色团块。它们是由地球上罕见的矿物质组成的，富含钙、铝以及在星云中最耐高温的（耐熔化的）主要元素钛。这些出现在耐高温内含物中的矿物质被认为是在太阳星云中最早凝结而成的物质。然而，对内含物质地的研究发现不同的内含物中矿物质出现的顺序并不相同，往往与理论上这些金属的凝结序列不一致。

阿伦德陨星里的陨石球粒和内含物是由球粒陨石基质结合到一起的，这是一种细粒混合物，主要是硅酸盐矿物，也包含铁颗粒和硫化亚铁。人们一度认为这些基质颗粒可能只含有星云尘埃，也就是形成陨石球粒和内含物的物质。不过对球粒陨石基质的详细研究表明多数基质确实是由星云的凝结和熔融形成的，但是在这些经过凝结和熔融的物质中还混有小部分残留的星际尘埃。

所有这些各种各样的组分被凝聚到一起形成了球粒陨石，就像与太阳具有很多相似化学组分的阿伦德陨星。为了比较陨星和太阳的组分，我们需要比较元素的比率，而不是简单的比较原子的丰度。毕竟，太阳含有的任何一种元素的原子数都要比一块陨星样品含有的多，但是两者间的铁和硅之比可能是具有可比性的。结果我们发现它们在组成上具有惊人的相似性。主要的差别是相比太阳，阿伦德陨星失去了大部分的挥发性元素，例如氢、碳、氧、氮以及惰性气体。这些元素即使是在很低的气温下也倾向于形成气体。我们或许会认为球粒陨石是“蒸馏后的太阳”的样本，有点像太阳除去了气体后的沉淀物。由于太阳系的质量几乎都集中于太阳，这种相似的化学组成意味着除了大部分的挥发性元素外，球粒陨石具有正常的太阳系组成，它们是真正星云物质的团块，很可能与形成行星的物质具有相似的组成。

Urban Climates

The city is an extraordinary processor of mass and energy and has its own metabolism. A daily input of water, food, and energy of various kinds is matched by an output of sewage, solid waste, air pollutants, energy, and materials that have been transformed in some way. The quantities involved are enormous. Many aspects of this energy use affect the atmosphere of a city, particularly in the production of heat.

In winter the heat produced by a city can equal or surpass the amount of heat available from the Sun. All the heat that warms a building eventually transfers to the surrounding air, a process that is quickest where houses are poorly insulated. But an automobile produces enough heat to warm an average house in winter, and if a house were perfectly insulated, one adult could also produce more than enough heat to warm it. Therefore, even without any industrial production of heat, an urban area tends to be warmer than the countryside that surrounds it.

The burning of fuel, such as by cars, is not the only source of this increased heat. Two other factors contribute to the higher overall temperature in cities. The first is the heat capacity of the materials that constitute the city, which is typically dominated by concrete and asphalt. During the day, heat from the Sun can be conducted into these materials and stored—to be released at night. But in the countryside materials have a significantly lower heat capacity because a vegetative blanket prevents heat from easily flowing into and out of the ground. The second factor is that radiant heat coming into the city from the Sun is trapped in two ways: (1) by a continuing series of reflection among the numerous vertical surfaces that buildings present and (2) by the dust dome, the cloudlike layer of polluted air that most cities produce. Shortwave radiation from the Sun passes through the pollution dome more easily than outgoing longwave radiation does; the latter is absorbed by the gaseous pollutants of the dome and reradiated back to the urban surface.

Cities, then, are warmer than the surrounding rural areas, and together they produce a phenomenon known as the urban heat island. Heat islands develop best under particular conditions associated with light winds, but they can form almost any time. The precise configuration of a heat island depends on several factors. For example, the wind can make a heat island stretch in the direction it blows. When a heat island is well developed, variations can be extreme; in winter, busy streets in cities can be 1.7°C warmer than the side streets. Areas near traffic lights can be similarly warmer than the areas between them because of the effect of cars standing in traffic instead of moving. The maximum differences in temperature between neighboring urban and rural environments is called the heat-island intensity for that region. In general, the larger the city, the greater its heat-island intensity. The actual level of intensity depends on such factors as the physical layout, population density, and productive activities of a metropolis.

The surface-atmosphere relationships inside metropolitan areas produce a number of climatic peculiarities. For one thing, the presence or absence of moisture is affected by the special qualities of the urban surface. With much of the built-up landscape impenetrable by water, even gentle rain runs off almost immediately from rooftops, streets, and parking lots. Thus, city surfaces, as well as the air above them, tend to be drier between episodes of rain; with little water available for the cooling process of evaporation, relative humidities are usually lower. Wind movements are also modified in cities because buildings increase the friction on air flowing around them. This friction tends to slow the speed of winds, making them far less efficient at dispersing pollutants. On the other hand, air turbulence increases because of the effect of skyscrapers on airflow. Rainfall is also increased

in cities. The cause appears to be in part greater turbulence in the urban atmosphere as hot air rises from the built-up surface.

Paragraph 1: The city is an extraordinary processor of mass and energy and has its own metabolism. A daily input of water, food, and energy of various kinds is matched by an output of sewage, solid waste, air pollutants, energy, and materials that have been transformed in some way. The quantities involved are **enormous**. Many aspects of this energy use affect the atmosphere of a city, particularly in the production of heat.

1. The word "**enormous**" in the passage is closest in meaning to
 - growing
 - frightening
 - very large
 - strictly controlled

Paragraph 2: In winter the heat produced by a city can equal or **surpass** the amount of heat available from the Sun. All the heat that warms a building eventually transfers to the surrounding air, a process that is quickest where houses are poorly insulated. But an automobile produces enough heat to warm an average house in winter, and if a house were perfectly insulated, one adult could also produce more than enough heat to warm it. Therefore, even without any industrial production of heat, an urban area tends to be warmer than the countryside that surrounds it.

2. The word "**surpass**" in the passage is closest in meaning to
 - remain below
 - be higher than
 - add to
 - come close to
3. According to paragraph 2, how soon heat from a warmed house reaches the outside air greatly affected by
 - how well the house is heated
 - how well the house is insulated
 - how many adults live in the house
 - how much sunshine the house receives

Paragraph 3: The burning of fuel, such as by cars, is not the only source of this increased heat. Two other factors contribute to the higher overall temperature in cities. The first is the heat capacity of the materials that constitute the city, which is typically dominated by concrete and asphalt. During the day, heat from the Sun can be conducted into these materials and stored—to be released at night. But in the countryside materials have a significantly lower heat capacity because a vegetative blanket prevents heat from easily flowing into and out of the ground. The second factor is that radiant heat coming into the city from the Sun is trapped in two ways: (1) by a continuing series of reflection among the numerous vertical surfaces that buildings present and (2) by the dust dome, the cloudlike layer of polluted air that most cities produce. Shortwave radiation from the Sun passes through the pollution dome more easily than outgoing longwave radiation does; the latter is absorbed by the gaseous pollutants of the dome and reradiated back to the urban surface.

4. According to paragraph 3, each of the following contributes to making urban areas warmer than the surrounding countryside EXCEPT

-
- the fuel burned by motor vehicles
 - the capacity to store heat of the materials used in building a city
 - the easy flow of heat into the ground in city areas covered by vegetation
 - the repeated reflection of solar radiation back and forth among buildings

5. According to paragraph 3, why do materials in the countryside have a lower heat capacity than materials in cities do?

- In the countryside in the Sun is the only important source of heat.
- Construction materials in the city are not as good at keeping buildings warm as they are in the countryside.
- In the countryside the solar heat that flows into the ground flows out again quickly.
- Countryside vegetation prevents heat from being trapped in the ground.

6. How is paragraph 3 organized?

- It describes two factors that contribute to the increased heat of cities and then provides two causes for the second factor.
- It describes two causes discovered in an early analysis of the increased heat of cities.
- It describes two factors that contribute to the increased heat of cities and two other factors that work against it.
- It describes two well-established causes of the increased heat of cities and other two whose roles are less well understood.

Paragraph 4: Cities, then, are warmer than the surrounding rural areas, and together they produce a phenomenon known as the urban heat island. Heat islands develop best under particular conditions associated with light winds, but they can form almost any time. The precise configuration of a heat island depends on several factors. For example, the wind can make a heat island stretch in the direction it blows. When a heat island is well developed, variations can be extreme; in winter, busy streets in cities can be 1.7°C warmer than the side streets. Areas near traffic lights can be similarly warmer than the areas between them because of the effect of cars standing in traffic instead of moving. The maximum differences in temperature between neighboring urban and rural environments is called the heat-island intensity for that region. In general, the larger the city, the greater its heat-island intensity. The actual level of intensity depends on such factors as the physical layout, population density, and productive activities of a metropolis.

7. The word "configuration" in the passage is closest in meaning to

- location
- history
- temperature
- shape

8. According to paragraph 4, what can explain the substantial differences in temperature between one area and other within a well-developed heat island?

- The overall size of the heat island that includes the two reasons
- The intensify of the heat island that includes the two areas
- Differences between the two areas in the general level of activity, including traffic
- Differences between the two areas in the insulation materials used in construction

9. Paragraph 4 supports the idea that a city's heat-island intensity would increase if

- the city went into an economic decline and lost population

-
- the city's economy shifted from heavy industry to health care and education
 - there was an upward trend in the average age of the city's residents
 - repair work on the streets slowed traffic throughout the city

Paragraph 5: The surface-atmosphere relationships inside metropolitan areas produce a number of climatic peculiarities. For one thing, the presence or absence of moisture is affected by the special qualities of the urban surface. With much of the built-up landscape impenetrable by water, even gentle rain runs off almost immediately from rooftops, streets, and parking lots. Thus, city surfaces, as well as the air above them, tend to be drier between episodes of rain; with little water available for the cooling process of evaporation, relative humidities are usually lower. Wind movements are also modified in cities because buildings increase the friction on air flowing around them. This friction tends to slow the speed of winds, making them far less efficient at dispersing pollutants. On the other hand, air turbulence increases because of the effect of skyscrapers on airflow. Rainfall is also increased in cities. The cause appears to be in part greater turbulence in the urban atmosphere as hot air rises from the built-up surface.

10. According to paragraph 5, surfaces in the city are generally drier than surfaces in the countryside between periods of rainfall because

- in the city gentle rain is much more common than heavy rain
- high temperatures in the city speed up the process of evaporation
- in the city there are longer periods of dry weather between episodes of rain
- rainwater in the city cannot soak into most surfaces and quickly runs off

11. The word "modified" in the passage is closest in meaning to

- changed
- blocked
- increased
- weakened

12. According to paragraph 5, which of the following is a factor responsible for the greater air turbulence in urban environments?

- The high speed of the winds travelling above cities
- The greater rainfall totals recorded in cities
- Attempts to reduce urban air pollution
- The effects of tall buildings on airflow

Paragraph 4: Cities, then, are warmer than the surrounding rural areas, and together they produce a phenomenon known as the urban heat island. Heat islands develop best under particular conditions associated with light winds, but they can form almost any time. ■ The precise configuration of a heat island depends on several factors. ■ For example, the wind can make a heat island stretch in the direction it blows. ■ When a heat island is well developed, variations can be extreme; in winter, busy streets in cities can be 1.7°C warmer than the side streets. ■ Areas near traffic lights can be similarly warmer than the areas between them because of the effect of cars standing in traffic instead of moving. The maximum differences in temperature between neighboring urban and rural environments is called the heat-island intensity for that region. In general, the larger the city, the greater its heat-island intensity. The actual level of intensity depends on such factors as the physical layout, population density, and productive activities of a metropolis.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Another possibility is for the heat island to be stretched along the course of major rivers, since large waterways typically have a warming effect on the air directly above them.

Where would the sentence best fit?

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some answer choices do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Cities create climatic conditions of their own through their physical structure and urban activities.

-
-
-

Answer Choices

- The amount of heat produced in a city will be reduced when cities use the heat from cars to warm homes.
- The built-up landscape of the city readily becomes a heat island, with greater water runoff and special climatic conditions such as low relative humidity and increased air turbulence.
- The materials from which cities are built and the effects of pollution domes help make urban areas warmer than rural areas.
- Cities tend to be warmer than their surrounding areas, in part because they produce heat by burning fuel for heating, powering vehicles, and industrial production.
- In most cities, the heating that results from solar radiation is intensified by carbon dioxide, a gas that is present at very high concentrations in cities' atmospheres.
- During periods without rainfall, the air in cities heats up and causes winds to slow down, with the result that pollutants are not dispersed.

参考答案:

1. ○ C
2. ○ B
3. ○ B
4. ○ C
5. ○ D
6. ○ A
7. ○ D
8. ○ C
9. ○ D
10. ○ D
11. ○ A
12. ○ D
13. ○ C
14. The built-up landscape of...
 The materials from which...
 Cities tend to be warmer...

参考译文：

城市气候

城市是一个有着自己新陈代谢的巨大的物质和能源处理厂。每天输入水，食物和各种各样的能量，相应的输出废水，废气，固体垃圾，废能和一些已经变形的材料。这个过程物质转移量异常的大，这种能源的消耗在很多方面影响城市的气候，特别是热量的产生。

冬天城市所产生的热量可以达到或超过其从太阳那里接收的热量。所有用来供暖的热量最后都扩散至周围的环境中，这个过程在那些隔离效果差的房屋里进行得更快。一辆汽车所产生的热量足以为一个普通的房屋供暖，如果房屋隔热效果做得好，一个成年人产生的热量就足以让其保暖了。因此，即使没有任何工业产热，城市地区也会比它周围的地区更暖和。

燃料的燃烧，比如汽车燃料，并不是这种热量增加的唯一来源。城市较高的平均温度。第一个原因是组成城市的主要典型物质是沥青和混凝土。在白天，来自太阳的热量传入到这些物质当中并在晚上被释放出来。但是在乡村储存能量的物质热容更低，因为植被会防止这些热量在地面上流动过快。第二个因素是太阳辐射进城市的热能有两种传递方式（1）通过大量建筑的垂直表面的一系列折射来传递（2）通过由大多数城市中受污染空气组成的云状物质来传递。来自太阳的短波辐射比长波辐射要更容易穿过污染层，后者被这层物质中的气体污染物所吸收，然后重新辐射到城市的表层。

城市要比它周围的乡村地区要热，同时它们也创造了被称为热岛效应的现象。热岛效应在有微风的情况下最明显，这种微风随时都可以出现。热岛的准确状态决定于好几个因素。比如风能在它出现的地方形成一个区域性的热岛。当一个热岛形成一定规模时，温度变化可能会非常极端，在冬天，繁忙的街道可能要比普通的街道热 1.7°C 。那些红绿灯附近的地区同样要比红绿灯之间的地区要暖和，因为汽车停止时候的热效应要比运动时要明显。城市周边和乡村温度的最大不同是地区热岛效应的程度。一般来讲城市越大，热岛效应的程度就越强。实际上热岛效应的程度取决于几个因素比如物理输出，人口密度，城市的产能。

在大都市里表面大气之间的关系产生了一系列特殊的气候特征。首先，湿气的存在与否受到了城市表层特殊性质的影响。由于水无法穿过这些城市建筑，即使是很小的雨也会立即从屋顶、街道和停车场流到地下。这样城市表层包括其空气在雨季的间歇期就会比较干燥，由于缺少水的蒸发过程来降温，相对湿度通常也很低。气流会因为城市建筑的摩擦而改变，这种摩擦会降低风速，使得气体扩散污染物的效率降低。另一方面，湍流也会因为高层建筑的影响而增加。雨也会减少。城市气候中从地表面上升的热气流应该是这种更大湍流的诱因。

Seventeenth-Century Dutch Agriculture

Agriculture and fishing formed the primary sector of the economy in the Netherlands in the seventeenth century. Dutch agriculture was modernized and commercialized new crops and agricultural techniques raised levels of production so that they were in line with market demands, and cheap grain was imported annually from the Baltic region in large quantities. According to estimates, about 120,000 tons of imported grain fed about 600,000 people: that is about a third of the Dutch population. Importing the grain, which would have been expensive and time consuming for the Dutch to have produced themselves, kept the price of grain low and thus stimulated individual demand for other foodstuffs and consumer goods.

Apart from this, being able to give up labor-intensive grain production freed both the land and the workforce for more productive agricultural divisions. The peasants specialized in livestock husbandry and dairy farming as well as in cultivating industrial crops and fodder crops: flax, madder, and rape were grown, as were tobacco, hops, and turnips. These products were bought mostly by urban businesses. There was also a demand among urban consumers for dairy products such as butter and cheese, which, in the sixteenth century, had become more expensive than grain. The high prices encouraged the peasants to improve their animal husbandry techniques; for example, they began feeding their animals indoors in order to raise the milk yield of their cows.

In addition to dairy farming and cultivating industrial crops, a third sector of the Dutch economy reflected the way in which agriculture was being modernized-horticulture. In the sixteenth century, fruit and vegetables were to be found only in gardens belonging to wealthy people. This changed in the early part of the seventeenth century when horticulture became accepted as an agricultural sector. Whole villages began to cultivate fruit and vegetables. The produce was then transported by water to markets in the cities, where the consumption of fruit and vegetables was no longer restricted to the wealthy.

As the demand for agricultural produce from both consumers and industry increased, agricultural land became more valuable and people tried to work the available land more intensively and to reclaim more land from wetlands and lakes. In order to increase production on existing land, the peasants made more use of crop rotation and, in particular, began to apply animal waste to the soil regularly, rather than leaving the fertilization process up to the grazing livestock. For the first time industrial waste, such as ash from the soap-boilers, was collected in the cities and sold in the country as artificial fertilizer. The increased yield and price of land justified reclaiming and draining even more land.

The Dutch battle against the sea is legendary. Noorderkwartier in Holland, with its numerous lakes and stretches of water, was particularly suitable for land reclamation and one of the biggest projects undertaken there was the draining of the Beemster lake which began in 1608. The richest merchants in Amsterdam contributed money to reclaim a good 7,100 hectares of land. Forty-three windmills powered the drainage pumps so that they were able to lease the reclamation to farmers as early as 1612, with the investors receiving annual leasing payments at an interest rate of 17 percent. Land reclamation continued, and between 1590 and 1665, almost 100,000 hectares were reclaimed from the wetland areas of Holland, Zeeland, and Friesland. However, land reclamation decreased significantly after the middle of the seventeenth century because the price of agricultural products began to fall, making land reclamation far less profitable in the second part of the century.

Dutch agriculture was finally affected by the general agricultural crisis in Europe during the last two decades of the seventeenth century. However, what is astonishing about this is not that Dutch agriculture was affected by

critical phenomena such as a decrease in sales and production, but the fact that the crisis appeared only relatively late in Dutch agriculture. In Europe as a whole, the exceptional reduction in the population and the related fall in demand for grain since the beginning of the seventeenth century had caused the price of agricultural products to fall. Dutch peasants were able to remain unaffected by this crisis for a long time because they had specialized in dairy farming industrial crops, and horticulture. However, toward the end of the seventeenth century, they too were overtaken by the general agricultural crisis.

Paragraph 1: Agriculture and fishing formed the primary sector of the economy in the Netherlands in the seventeenth century. Dutch agriculture was modernized and commercialized new crops and agricultural techniques raised levels of production so that they were in line with market demands, and cheap grain was imported annually from the Baltic region in large quantities. According to estimates, about 120,000 tons of imported grain fed about 600,000 people: that is about a third of the Dutch population. Importing the grain, which would have been expensive and time consuming for the Dutch to have produced themselves, kept the price of grain low and thus stimulated individual demand for other foodstuffs and consumer goods.

1. By indicating that production was in line with market demands the author means that Dutch farmers were able to

- exceed other European countries in agricultural production
- produce crops that were similar to those popular in other European countries
- supply sufficient quantities of the agricultural products that the Dutch population wanted to buy
- satisfy the demand for high quality agricultural products from the Baltic region

2. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- Buying imported grain led to the Dutch demanding that other foodstuffs and consumer goods be imported.
- Because the Dutch were able to import inexpensive grain, they had money available to create a demand for other food products and consumer goods.
- Keeping the price of grain low was a primary goal of the Dutch at a time when they could not produce enough grain to provide for all their needs.
- The demand for other foodstuffs and consumer goods forced the Dutch to import grain and other products at a time when maintaining low prices was especially important.

Paragraph 2: Apart from this, being able to give up labor-intensive grain production freed both the land and the workforce for more productive agricultural divisions. The peasants specialized in livestock husbandry and dairy farming as well as in cultivating industrial crops and fodder crops: flax, madder, and rape were grown, as were tobacco, hops, and turnips. These products were bought mostly by urban businesses. There was also a demand among urban consumers for dairy products such as butter and cheese, which, in the sixteenth century, had become more expensive than grain. The high prices encouraged the peasants to improve their animal husbandry techniques; for example, they began feeding their animals indoors in order to raise the milk yield of their cows.

3. The phrase "Apart from" in the passage is closest in meaning to

- Besides
- Despite
- As a result of
- Instead of

4. According to paragraph 2, the increases demands on Dutch agriculture made by urban consumers had which of the following results?

- Seasonal shortages of the products consumers most wanted
- Increased production of high-quality grain products
- Raised prices charged by peasants to urban consumers
- Different ways of caring for dairy-producing animals

Paragraph 3: In addition to dairy farming and cultivating industrial crops, a third sector of the Dutch economy reflected the way in which agriculture was being modernized-horticulture. In the sixteenth century, fruit and vegetables were to be found only in gardens belonging to wealthy people. This changed in the early part of the seventeenth century when horticulture became accepted as an agricultural sector. Whole villages began to cultivate fruit and vegetables. The produce was then transported by water to markets in the cities, where the consumption of fruit and vegetables was no longer restricted to the wealthy.

5. The word “consumption” in the passage is closest in meaning to

- sale
- storage
- exportation
- utilization

6. According to paragraph 3, the modernization of agriculture in the Netherlands was evident in all of the following ways EXCEPT:

- The production of fruits and vegetables became a commercial venture.
- The wealthy stopped growing fruits and vegetables in their gardens and grew flowers instead.
- Horticultural produce was transported to city markets by water.
- Many more people were able to afford to eat fresh fruits and vegetables.

Paragraph 4: As the demand for agricultural produce from both consumers and industry increased, agricultural land became more valuable and people tried to work the available land more intensively and to reclaim more land from wetlands and lakes. In order to increase production on existing land, the peasants made more use of crop rotation and, in particular, began to apply animal waste to the soil regularly, rather than leaving the fertilization process up to the grazing livestock. For the first time industrial waste, such as ash from the soap-boilers, was collected in the cities and sold in the country as artificial fertilizer. The increased yield and price of land justified reclaiming and draining even more land.

7. Select the TWO answer choices that, according to paragraph 4, indicate two methods people used to increase the productivity of their land. To receive credit you must select TWO answers

- They planted different crops in different sections of the farm each year.
- They used improved irrigation methods to increase the yield of crops.
- They increased the use of fertilizers to supply more nutrients to plants.
- They used new horticultural practices to produce different varieties of plants in the same section of the farm.

Paragraph 5: The Dutch battle against the sea is legendary. Noorderkwartier in Holland, with its numerous lakes and stretches of water, was particularly suitable for land reclamation and one of the biggest projects undertaken there was the draining of the Beemster lake which began in 1608. The richest merchants in Amsterdam contributed money to reclaim a good 7,100 hectares of land. Forty-three windmills powered the

drainage pumps so that they were able to lease the reclamation to farmers as early as 1612, with the investors receiving annual leasing payments at an interest rate of 17 percent. Land reclamation continued, and between 1590 and 1665, almost 100,000 hectares were reclaimed from the wetland areas of Holland, Zeeland, and Friesland. However, land reclamation decreased significantly after the middle of the seventeenth century because the price of agricultural products began to fall, making land reclamation far less profitable in the second part of the century.

8. The word "they" in the passage refers to

- merchants
- hectares
- windmills
- drainage pumps

9. According to paragraph 5, which of the following was an important reason why land-reclamation projects in the first half of the seventeenth century proceeded rapidly?

- Windmills became powerful enough to run drainage pumps efficiently.
- Merchants invested large amounts of money in reclamation.
- High interest rates discouraged people from buying land already available.
- Reclaimed land was much more suitable for agriculture than the existing land.

10. The word "legendary" in the passage is closest in meaning to

- continuous
- well documented
- famous
- expensive

Paragraph 6: Dutch agriculture was finally affected by the general agricultural crisis in Europe during the last two decades of the seventeenth century. However, what is astonishing about this is not that Dutch agriculture was affected by critical phenomena such as a decrease in sales and production, but the fact that the crisis appeared only relatively late in Dutch agriculture. In Europe as a whole, the exceptional reduction in the population and the related fall in demand for grain since the beginning of the seventeenth century had caused the price of agricultural products to fall. Dutch peasants were able to remain unaffected by this crisis for a long time because they had specialized in dairy farming industrial crops, and horticulture. However, toward the end of the seventeenth century, they too were overtaken by the general agricultural crisis.

11. The word "astonishing" in the passage is closest in meaning to

- incredible
- unfortunate
- predicted
- evident

12. Which of the following best describes the organization of the passage?

- A presentation of a theory and the evidence in favor of it
- A general statement followed by examples and relevant details
- A analysis of a problem and its solution
- A series of statements leading to a conclusion

Paragraph 3: In addition to dairy farming and cultivating industrial crops, a third sector of the Dutch

economy reflected the way in which agriculture was being modernized-horticulture. ■ In the sixteenth century, fruit and vegetables were to be found only in gardens belonging to wealthy people. ■ This changed in the early part of the seventeenth century when horticulture became accepted as an agricultural sector. ■ Whole villages began to cultivate fruit and vegetables. ■ The produce was then transported by water to markets in the cities, where the consumption of fruit and vegetables was no longer restricted to the wealthy.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage

Some villages specialized in growing cabbages and carrots; others grew onions, mustard, and coriander; and still others produced fruit and cultivated trees in nurseries.

Where would the sentence best fit?

14. **Direction:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences presented in the passage are minor ideas in the passage. **This question is worth 2 points.**

Agriculture formed one of the primary sectors of the economy in seventeenth-century Netherlands.

-
-
-

Answer Choices

- The Baltic region produced large quantities of grain for export to other regions, including the Netherlands.
- The richest people grew enough fruits and vegetables to supply the entire country with fresh produce.
- An agricultural crisis that began in Europe did not affect Dutch land-reclamation projects.
- Specialization in dairy farming, industrial crops, and horticulture allowed the Dutch to be more productive than some other regions in Europe.
- Land reclamation and improvement allowed the Dutch to meet demands for their agricultural products.
- Because the Dutch had specialized their agricultural output they were less susceptible to the crisis that Europe experienced from the beginning of the century.

参考答案:

1. ○ C

2. ○ B

3. ○ A

4. ○ D

5. ○ D

6. ○ B

7. ○ AC

8. ○ A

9. ○ B

10. ○ C

11. ○ A

12. ○ B

13. ○ D

14. Specialization in dairy...

Land reclamation...

Because the Dutch...

参考译文：

十七世纪的荷兰农业

农业和渔业是十七世纪荷兰经济的主要部分。荷兰农业的到了现代化改造，并且新型的商业化农作物和农业技术随着市场需求的提高而提高，每年都会从波罗的海进口大量的便宜的粮食。据估计，进口的 **12** 万吨的粮食养活着大约 **60** 万人，大概相当与荷兰人口的三分之一。进口这些过去昂贵并且自己生产需要大量时间的农作物使得现在粮食的价格保持在低位并且刺激了其他食用物品和商品的个人需求。

除了这些，放弃这种劳动密集型的粮食生产解放了土地和劳动力使之能够参与到更多的农业生产中。农民对畜牧业，乳品业与对培养工业作物和饲料作物同样重视：亚麻，茜草，油菜和烟草，啤酒花，芜菁一样都有种植。这些东西可以通过城镇贸易获得。城镇消费者对乳制品比如黄油和奶酪同样有需求，这些东西在十七世纪就比食物要贵了。高价格促使农民提高他们的畜牧技术，比如他们开始圈养这些动物以提高奶牛的奶产量。

除了乳品业和工业作物的种植，荷兰经济的三分之一反映在现代化的园艺上。在十六世纪，水果和蔬菜只是有钱人花园中的玩物。直到十七世纪早期园艺成为农业的一部分，所有的村庄都开始培养蔬菜和水果，产品通过水路运送到城市的市场中，这种商品的消费也不再只是有钱人的专利。

随着消费者和工业对这种农业产品的需求增加，耕地变得越来越珍贵，人们对可耕地的利用强度越来越大，并且从湿地和湖泊中开垦了更多的耕地。为了增加已有土地的产量，农民们运用轮作特别是用动物排泄物来给土地进行周期性施肥而不是随意让牧区的牲畜来进行施肥。工业废料比如煮皂工的灰料和城市废料第一次被卖到城市作为人工肥料增加的产量和土地价格的上涨。产量和土地价格的上涨使得开垦和灌溉更多的土地变得合理化。

荷兰与海有着传奇般的斗争，由于它有为数众多的湖泊和临海区，特别适合开垦土地，其中完成的的最大一个工程是 **1608** 年贝母斯特湖的疏浚。阿姆斯特丹最富有的商人们花钱来开垦这片 **7100** 顷的土地。早在 **1612** 年，四十三个风车推动着水泵灌溉土地以便把开垦地租给农民，而投资者每年接受租金的 **17%** 作为利息。土地开垦一直在继续，在 **1590** 到 **1665** 年之间大约有十万公顷的土地从荷兰，泽兰和弗里斯兰的湿地中开垦出来。无论如何，土地开垦在十七世纪中叶大幅减少，因为农产品的价格开始回落，在十七世纪下半叶土地开垦的利润就不是那么丰厚了。

荷兰农业最后还是受到十七世纪最后两个十年欧洲主要农业危机的影响。不过令人惊讶的不是荷兰农业受到这些危机现象的影响而导致产量和销售量的降低，而是这些危机在荷兰农业中发生的相当晚。欧洲总体来讲，异常的人口减少和相应的对粮食需求的减少从十七世纪早期就开始了，并且会导致农产品价格的回落。荷兰农民能够在这种危机中保持长期不受影响是因为他们专注于乳制品和工业作物以及园艺的研究。无论如何，在十七世纪晚期，他们还是赶上了普遍的农业危机。

Rock Art of the Australia Aborigines

Ever since European first explored Australia, people have been trying to understand the ancient rock drawings and carvings created by the Aborigines, the original inhabitants of the continent. Early in the nineteenth century, encounters with Aboriginal rock art tended to be infrequent and open to speculative interpretation, but since the late nineteenth century, awareness of the extent and variety of Australian rock art has been growing. In the latter decades of the twentieth century there were intensified efforts to understand and record the abundance of Australian rock art.

The systematic study of this art is a relatively new discipline in Australia. Over the past four decades new discoveries have steadily added to the body of knowledge. The most significant data have come from a concentration on three major questions. First, what is the age of Australian rock art? Second, what is its stylistic organization and is it possible to discern a sequence or a pattern of development between styles? Third, is it possible to interpret accurately the subject matter of ancient rock art, bring to bear all available archaeological techniques and the knowledge of present-day Aboriginal informants?

The age of Australia's rock art is constantly being revised, and earlier datings have been proposed as the result of new discoveries. Currently, reliable scientific evidence dates the earliest creation of art on rock surfaces in Australia to somewhere between 30,000 and 50,000 years ago. This in itself is an almost incomprehensible span of generations, and one that makes Australia's rock art the oldest continuous art tradition in the world.

Although the remarkable antiquity of Australia's rock art is now established, the sequences and meanings of its images have been widely debated. Since the mid-1970s, a reasonably stable picture has formed of the organization of Australian rock art. In order to create a sense of structure to this picture, researchers have relied on a distinction that still underlies the forms of much indigenous visual culture—a distinction between geometric and figurative elements. Simple geometric repeated patterns—circles, concentric circles, and lines—constitute the iconography (characteristic images) of the earliest rock-art sites found across Australia. The frequency with which certain simple motifs appear in these oldest sites has led rock-art researchers to adopt a descriptive term—the Panaramitee style—a label which takes its name from the extensive rock pavements at Panaramitee North in desert South Australia, which are covered with motifs pecked into the surface. Certain features of these engravings lead to the conclusion that they are of great age—geological changes had clearly happened after the designs had been made and local Aboriginal informants, when first questioned about them, seemed to know nothing of their origins. Furthermore, the designs were covered with “desert varnish,” a glaze that develops on rock surfaces over thousands of years of exposure to the elements. The simple motifs found at Panaramitee are common to many rock-art sites across Australia. Indeed, sites with engravings of geometric shapes are also to be found on the island of Tasmania, which was separated from the mainland of the continent some 10,000 years ago.

In the 1970s when the study of Australian archaeology was in an exciting phase of development, with the great antiquity of rock art becoming clear. Lesley Maynard, the archaeologist who coined the phrase “Panaramitee style,” suggested that a sequence could be determined for Australian rock art, in which a geometric style gave way to a simple figurative style (outlines of figures and animals), followed by a range of complex figurative styles that, unlike the pan-Australian geometric tradition tended to much greater regional diversity. While accepting that this sequence fits the archaeological profile of those sites, which were occupied continuously over many thousands of years a number of writers have warned that the underlying assumption of such a

sequence—a development from the simple and the geometric to the complex and naturalistic—obscures the cultural continuities in Aboriginal Australia, in which geometric symbolism remains fundamentally important. In this context the simplicity of a geometric motif may be more apparent than real. Motifs of seeming simplicity can encode complex meanings in Aboriginal Australia. And has not twentieth-century art shown that naturalism does not necessarily follow abstraction in some kind of predetermine sequence?

Paragraph 1: Ever since European first explored Australia, people have been trying to understand the ancient rock drawings and cavings created by the Aborigines, the original inhabitants of the continent. Early in the nineteenth century, encounters with Aboriginal rock art tended to be infrequent and open to speculative interpretation, but since the late nineteenth century, awareness of the extent and variety of Australian rock art has been growing. In the latter decades of the twentieth century there were intensified efforts to understand and record the abundance of Australian rock art.

1. The word “infrequent” in the passage is closest in meaning to

- puzzling
- uncommon
- questionable
- undocumented

2. According to paragraph 1, the twentieth-century approach to studying Australian rock art was different from earlier approaches because the twentieth-century approach

- recognized that many different groups of Aborigines created Australian rock art
- concentrated on a limited range of Aboriginal rock art
- examined Aboriginal art from an Aboriginal rather than from a European perspective
- focused more intensely on understanding and documenting rock art

Paragraph 2: The systematic study of this art is a relatively new discipline in Australia. Over the past four decades new discoveries have steadily added to the body of knowledge. The most significant data have come from a concentration on three major questions. First, what is the age of Australian rock art? Second, what is its stylistic organization and is it possible to discern a sequence or a pattern of development between styles? Third, is it possible to interpret accurately the subject matter of ancient rock art, bring to bear all available archaeological techniques and the knowledge of present-day Aboriginal informants?

3. The word “relatively” in the passage is closest in meaning to

- completely
- comparatively
- apparently
- particularly

4. The word “discern” in the passage is closest in meaning to

- indicate
- apply
- identify
- repeat

Paragraph 3: The age of Australia’s rock art is constantly being revised, and earlier datings have been proposed as the result of new discoveries. Currently, reliable scientific evidence dates the earliest creation of art

on rock surfaces in Australia to somewhere between 30,000 and 50,000 years ago. This in itself is an almost incomprehensible span of generations, and one that makes Australia's rock art the oldest continuous art tradition in the world.

5. The word “revised” in the passage is closest in meaning to

- discussed
- raised
- challenged
- changed

Paragraph 4: Although the remarkable antiquity of Australia's rock art is now established, the sequences and meanings of its images have been widely debated. Since the mid-1970s, a reasonably stable picture has formed of the organization of Australian rock art. In order to create a sense of structure to this picture, researchers have relied on a distinction that still underlies the forms of much indigenous visual culture—a distinction between geometric and figurative elements. Simple geometric repeated patterns—circles, concentric circles, and lines—constitute the iconography (characteristic images) of the earliest rock-art sites found across Australia. The frequency with which certain simple motifs appear in these oldest sites has led rock-art researchers to adopt a descriptive term—the Panaramitee style—a label which takes its name from the extensive rock pavements at Panaramitee North in desert South Australia, which are covered with motifs pecked into the surface. Certain features of these engravings lead to the conclusion that they are of great age—geological changes had clearly happened after the designs had been made and local Aboriginal informants, when first questioned about them, seemed to know nothing of their origins. Furthermore, the designs were covered with “desert varnish,” a glaze that develops on rock surfaces over thousands of years of exposure to the elements. The simple motifs found at Panaramitee are common to many rock-art sites across Australia. Indeed, sites with engravings of geometric shapes are also to be found on the island of Tasmania, which was separated from the mainland of the continent some 10,000 years ago.

6. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave ways or leave out essential information

- The oldest rock art sites have simpler motifs than the best known sites of Panaramitee North.
- Because motifs primarily associated with the Panaramitee region are common in the oldest sites the term Panaramitee style has become the general term for rock art of this type.
- Because the Panaramitee style is so common in the older sites, researchers have described it most extensively.
- The motifs carved in the rocky surface of the Panaramitee region make up the oldest form of rock art discovered in Australia.

7. According to paragraph 4, researchers have organized and structured Australian rock art by distinguishing between which of the following?

- Images found at Panaramitee North and images found in other parts of Australia
- Images found in a particular type of rock layer and images found in other types of rock layers
- Images that have geometric elements and images that have figurative elements
- Images that are typically found and image that are rarely found

8. According to paragraph 4, all of the following are signs of the great age of the Panaramitee engravings EXCEPT:

- The engravings consisted of simple animal drawings.

-
- The engravings were covered with a layer of a substance known as “desert varnish”.
 - Local Aborigines who were asked knew nothing about the origin of the engravings.
 - Geologic changes had occurred after the engravings were made.

9. Why does the author include information about Tasmania in paragraph 4?

- To provide evidence that the Panaramitee style is widespread and of great age
- To prove that Aboriginal Australians could not have made the carvings in Tasmania
- To indicate how researchers have determined how long ago Tasmania separated from the mainland
- To illustrate the importance of geometric rock art to tourism in Tasmania

Paragraph 5: In the 1970s when the study of Australian archaeology was in an exciting phase of development, with the great antiquity of rock art becoming clear. Lesley Maynard, the archaeologist who coined the phrase “Panaramitee style,” suggested that a sequence could be determined for Australian rock art, in which a geometric style gave way to a simple figurative style (outlines of figures and animals), followed by a range of complex figurative styles that, unlike the pan-Australian geometric tradition tended to much greater regional diversity. While accepting that this sequence fits the archaeological profile of those sites, which were occupied continuously over many thousands of years a number of writers have warned that the underlying assumption of such a sequence—a development from the simple and the geometric to the complex and naturalistic—obscures the cultural continuities in Aboriginal Australia, in which geometric symbolism remains fundamentally important. In this context the simplicity of a geometric motif may be more apparent than real. Motifs of seeming simplicity can encode complex meanings in Aboriginal Australia. And has not twentieth-century art shown that naturalism does not necessarily follow abstraction in some kind of predetermine sequence?

10. According to paragraph 5, the complex figurative style differs from the geometric style in that the complex figurative style

- varies significantly from region to region
- is more meaningful
- appears on only a few types of rocks
- has changed little overtime

11. According to paragraph 5, Lesley Maynard made which of the following suggestions about Australian rock art?

- There were a pattern of human figures being represented in a more complex style than animal figures.
- Australian archaeology should concentrate on determining the sequence of styles that led up to the Panaramitee style.
- The great antiquity of Australian rock art would probably make it impossible to determine the ages of the various styles found in rock art.
- The geometric style of Australian rock art was replaced by increasingly complex figurative styles.

12. In paragraph 5, the author indicates that twentieth century art has shown that naturalism does not necessarily follow abstraction in some kind of predetermined sequence in order to

- emphasize that it may not be possible to determine what the figures in ancient rock art represent
- suggest a reply to those who have questioned Maynard’s interpretation of the sequence of Australian rock art
- provide a counterexample to Maynard’s interpretation of the sequence of Australian rock art
- indicate that twentieth century art is more advanced than ancient rock art

Paragraph 2: The systematic study of this art is a relatively new discipline in Australia. Over the past four decades new discoveries have steadily added to the body of knowledge. The most significant data have come from a concentration on three major questions. First, what is the age of Australian rock art? Second, what is its stylistic organization and is it possible to discern a sequence or a pattern of development between styles? Third, is it possible to interpret accurately the subject matter of ancient rock art, bring to bear all available archaeological techniques and the knowledge of present-day Aboriginal informants? ■

Paragraph 3: The age of Australia's rock art is constantly being revised, and earlier datings have been proposed as the result of new discoveries. ■Currently, reliable scientific evidence dates the earliest creation of art on rock surfaces in Australia to somewhere between 30,000 and 50,000 years ago. ■This in itself is an almost incomprehensible span of generations, and one that makes Australia's rock art the oldest continuous art tradition in the world. ■

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage
While a great deal of information exists, the answers to these questions are not yet definitive.
Where would the sentence best fit?

14. **Direction:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences presented in the passage are minor ideas in the passage. **This question is worth 2 points.**

Interest in the rock art of the original inhabitants of Australia has grown over the last two centuries.

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-
-

Answer Choices

- Late nineteenth century studies of Aboriginal rock art failed to recognize that a variety of styles existed.
- The extreme age of the earliest Aboriginal rock art has been established but the interpretation of rock art images is still debated.
- A sequence from geometric to more representative art fits many sites but does not necessarily indicate a progression from simple to complex meaning.
- In determining the way in which Australian rock art was organized, archaeologists have made little distinction between geometric and figurative elements.
- Older examples of rock art consist of simple, repeated geometric patterns while later rock art includes figures and animals.
- Aboriginal informants were able to explain the meanings of ancient rock art symbols.

参考答案:

1. ○ B

2. ○ D

3. ○ B

4. ○ C

5. ○ D

6. ○ B

7. ○ C

8. ○ A

9. ○ A

10. ○ A

11. ○ D

12. ○ C

13. ○ A

14. The extreme age...

Older examples of...

A sequence from...

参考译文：

澳大利亚土著的岩石艺术

自从欧洲人第一次探索澳大利亚，人们就开始试图了解那些远古的土著居民创造的岩画和洞穴，这些土著居民是这片大陆的原始居民。在十九世纪早期，碰到这些岩石艺术品还不常见并且只是做一些推断性的解释，但是到了十九世纪晚期，人们意识到这些现存的种类繁多的澳大利亚岩石艺术越来越多。在随后二十世纪的几十年里，为了了解和记录这些丰富的岩石艺术人们做出了很大的努力。

系统的研究这门艺术是澳大利亚一门相当新的学科。在过去四十年里新的发现使得这门学科日益巩固。最显著的成就来源于对主要问题的集中研究。首先，澳大利亚岩石艺术处于哪个时代？第二，它的组织风格是什么样的以及有没有可能辨别出这一系列风格的发展变化？第三，有没有可能在利用所有可能的考古技术和对现有土著居民中博学者了解的情况下，准确的了解这些岩石艺术所要表达的主题？

关于澳大利亚岩石艺术的时代一直在修正，开始的时候的时代定位是新发现的结果。现在，可靠地科学证据证明最早的岩石艺术创作大约在 3 万到 5 万年前。这项发现的时代跨度是最令人无法理解的，也使得澳大利亚的岩石艺术成为世界上传承最久的艺术。

尽管一些岩石艺术的非凡遗迹被发掘出来，他们的年代顺序和上面图案的意义却有着广泛的争论。1970 年代中期一种可推理的主要图案说明了澳大利亚岩石艺术的形成结构。为了给这个图案创造一个感性架构，研究者们依赖根基于本土视觉文化形式的不同，这种不同是几何和比喻形象的不同。由最早在澳大利亚岩石艺术地区的发现的简单的集合重复图案——圆，同心圆，以及线条组成了肖像学（人物图案）。几个简单图案在这些最古老的遗址上出现的频率使得岩石艺术研究人员采用了一种描述性的术语——**Panaramitee** 风格，一个取名于从澳大利亚南部沙漠广袤的岩石丘的标签，这些岩石丘表面都刻有这些图案。这些图案的特点让人们得出一个结论即它们是来自于一个伟大的时代——地质变化明显在这些图案的设计之后，当那些土著中的博学者第一次被问到这个问题时，好像并不知道它们的来源。此外，这些设计被“沙漠漆岩”所覆盖，这种沙漠漆岩是颜料经过数千年的暴露形成的。在 **Panaramitee** 发现的简单图案和其他岩石艺术遗址的图案大同小异。不过，石刻的几何图案在塔斯马尼亚岛也有发现，这个到 1 万年前就从澳大利亚大陆分离了出去。

在 1970 年代当澳大利亚考古处在发展阶段的时候，面对大量的古老岩石艺术，考古学家 **Lesley Maynard** 杜撰了新词“**Panaramitee** 风格”，认为澳大利亚岩石艺术的年代顺序决定于几何图案的风格，这种风格决定于简单的比喻风格（人物和动物的形象），这种形象具有很突出的复杂性，它不像泛澳大利亚的几何图案那样有着巨大的地区差异性。我们接受了这些地区的考古图案与其年代顺序相对应的观点，这些地方几千年来充斥着这种东西，然而一些人认为这种潜在结论——从简单图案到几何图案再到复杂和自然主义的图案，使得澳大利亚土著的几何图案象征主义文化的连续性变得模糊，却依然是非常重要的。在这种情况下几何图案可能比真实的东西更简明。对于澳大利亚土著来说简单图案也能包含复杂的含义。而且 20 世纪的艺术难道还没有表明自然主义并不需要遵循某种抽象的顺序？

Lake Water

Where does the water in a lake come from, and how does water leave it? Water enters a lake from inflowing rivers, from underwater seeps and springs, from overland flow off the surrounding land, and from rain falling directly on the lake surface. Water leaves a lake via outflowing rivers, by soaking into the bed of the lake, and by evaporation. So much is obvious.

The questions become more complicated when actual volumes of water are considered: how much water enters and leaves by each route? Discovering the inputs and outputs of rivers is a matter of measuring the discharges of every inflowing and outflowing stream and river. Then exchanges with the atmosphere are calculated by finding the difference between the gains from rain, as measured (rather roughly) by rain gauges, and the losses by evaporation, measured with models that correct for the other sources of water loss. For the majority of lakes, certainly those surrounded by forests, input from overland flow is too small to have a noticeable effect. Changes in lake level not explained by river flows plus exchanges with the atmosphere must be due to the net difference between what seeps into the lake from the groundwater and what leaks into the groundwater. Note the word "net": measuring the actual amounts of groundwater seepage into the lake and out of the lake is a much more complicated matter than merely inferring their difference.

Once all this information has been gathered, it becomes possible to judge whether a lake's flow is mainly due to its surface inputs and outputs or to its underground inputs and outputs. If the former are greater, the lake is a surface-water-dominated lake; if the latter, it is a seepage-dominated lake. Occasionally, common sense tells you which of these two possibilities applies. For example, a pond in hilly country that maintains a steady water level all through a dry summer in spite of having no streams flowing into it must obviously be seepage dominated. Conversely, a pond with a stream flowing in one end and out the other, which dries up when the stream dries up, is clearly surface water dominated.

By whatever means, a lake is constantly gaining water and losing water: its water does not just sit there, or, anyway, not for long. This raises the matter of a lake's residence time. The residence time is the average length of time that any particular molecule of water remains in the lake, and it is calculated by dividing the volume of water in the lake by the rate at which water leaves the lake. The residence time is an average; the time spent in the lake by a given molecule (if we could follow its fate) would depend on the route it took: it might flow through as part of the fastest, most direct current, or it might circle in a backwater for an indefinitely long time.

Residence times vary enormously. They range from a few days for small lakes up to several hundred years for large ones; Lake Tahoe, in California, has a residence time of 700 years. The residence times for the Great Lakes of North America, namely, Lakes Superior, Michigan, Huron, Erie, and Ontario, are, respectively, 190, 100, 22, 2.5, and 6 years. Lake Erie's is the lowest: although its area is larger than Lake Ontario's, its volume is less than one-third as great because it is so shallow—less than 20 meters on average.

A given lake's residence time is by no means a fixed quantity. It depends on the rate at which water enters the lake, and that depends on the rainfall and the evaporation rate. Climatic change (the result of global warming?) is dramatically

affecting the residence times of some lakes in northwestern Ontario, Canada. In the period 1970 to 1986, rainfall in the area decreased from 1,000 millimeters to 650 millimeters per annum, while above-average temperatures speeded up the evapotranspiration rate (the rate at which water is lost to the atmosphere through evaporation and the processes of plant life).

The result has been that the residence time of one of the lakes increased from 5 to 18 years during the study period. The

slowing down of water renewal leads to a chain of further consequences; it causes dissolved chemicals to become increasingly concentrated, and this, in turn, has a marked effect on all living things in the lake.

Paragraphy1: Where does the water in a lake come from, and how does water leave it? Water enters a lake from inflowing rivers, from underwater seeps and springs, from overland flow off the surrounding land, and from rain falling directly on the lake surface. Water leaves a lake via outflowing rivers, by soaking into the bed of the lake, and by evaporation. So much is obvious.

1. The phrase So much in the passage refers to

- ☐ the negative effects of overland flow, rain, and evaporation on river water levels
- ☐ water that a lake loses to outflowing rivers, to the lake bed, and to evaporation
- ☐ the importance of rivers to the maintenance of lake water levels
- ☐ the information given about ways that water can enter or exit a lake

Paragraphy2: The questions become more complicated when actual volumes of water are considered: how much water enters and leaves by each route? Discovering the inputs and outputs of rivers is a matter of measuring the discharges of every inflowing and outflowing stream and river. Then exchanges with the atmosphere are calculated by finding the difference between the gains from rain, as measured (rather roughly) by rain gauges, and the losses by evaporation, measured with models that correct for the other sources of water loss. For the majority of lakes, certainly those surrounded by forests, input from overland flow is too small to have a noticeable effect. Changes in lake level not explained by river flows plus exchanges with the atmosphere must be due to the net difference between what seeps into the lake from the groundwater and what leaks into the groundwater. Note the word "net": measuring the actual amounts of groundwater seepage into the lake and out of the lake is a much more complicated matter than merely inferring their difference.

2. The word gains in the passage is closest in meaning to

- ☐ results
- ☐ increases
- ☐ resources
- ☐ savings

3. Which of the following can be inferred from paragraph 2 about the movement of water into a lake?

- ☐ Heavy rain accounts for most of the water that enters into lakes.
- ☐ Rainfall replaces approximately the amount of water lost through evaporation.
- ☐ Overland flow into lakes is reduced by the presence of forests.
- ☐ Seepage has a smaller effect on water level than any other input.

4. Why does the author use the phrase Note the word "net" in the passage?

- ☐ To emphasize the impact of seepage on water levels

-
- ☐ To point out that seepage is calculated differently from river flows and atmospheric exchanges
 - ☐ To compare the different methods of calculating seepage
 - ☐ To emphasize the difficulty of obtaining specific values for seepage inputs and outputs

Paragraph 3: Once all this information has been gathered, it becomes possible to judge whether a lake's flow is mainly due to its surface inputs and outputs or to its underground inputs and outputs. If the former are greater, the lake is a surface-water-dominated lake; if the latter, it is a seepage-dominated lake. Occasionally, common sense tells you which of these two possibilities applies. For example, a pond in hilly country that maintains a steady water level all through a dry summer in spite of having no streams flowing into it must obviously be seepage dominated. Conversely, a pond with a stream flowing in one end and out the other, which dries up when the stream dries up, is clearly surface water dominated.

5. The word **Conversely** meaning to

- ☐ On the other hand
- ☐ In the same way
- ☐ In other words
- ☐ On average

6. According to paragraph 3, which of the following best describes a seepage-dominated lake?

- ☐ A lake that is fed by streams but still has fluctuating water levels
- ☐ A lake with a constant water level that has no streams or rivers as inputs
- ☐ A lake with a stream flowing into it and a stream flowing out of it
- ☐ A lake that has surface and underground inputs but loses water during dry seasons

Paragraph 4: By whatever means, a lake is constantly gaining water and losing water: its water does not just sit there, or, anyway, not for long. This raises the matter of a lake's residence time. The residence time is the average length of time that any particular molecule of water remains in the lake, and it is calculated by dividing the volume of water in the lake by the rate at which water leaves the lake. The residence time is an average; the time spent in the lake by a given molecule (if we could follow its fate) would depend on the route it took: it might flow through as part of the fastest, most direct current, or it might circle in a backwater for an indefinitely long time.

7. It can be inferred from paragraph 4 that the length of time a given molecule of water remains in a lake

- ☐ Depends entirely upon the average speed of a lake's currents
- ☐ Can be measured by the volume of the lake alone
- ☐ Can be greater or lesser than the residence time
- ☐ Is similar to the length of time all other molecules remain in that lake

Paragraph 5: Residence times vary enormously. They range from a few days for small lakes up to several hundred years for large ones; Lake Tahoe, in California, has a residence time of 700 years. The residence times for the Great Lakes of North America, namely, Lakes Superior, Michigan, Huron, Erie, and Ontario, are, respectively, 190, 100, 22, 2.5, and 6 years. Lake Erie's is the lowest: although its area is larger than Lake Ontario's, its volume is less than one-third as great because it is so shallow—less than 20 meters on average.

8. According to paragraph 5, Lake Erie's residence time is lower than Lake Ontario's for which of the following reasons?

- ☐ Lake Erie has a larger area than Lake Ontario.
- ☐ Lake Ontario is shallower than Lake Erie.
- ☐ Lake Ontario has a greater volume than Lake Erie.
- ☐ Lake Erie receives less rainfall than Lake Ontario.

9. Why does the author discuss the Great Lakes in paragraph 5?

- ☐ To demonstrate the extent to which residence times vary from lake to lake
- ☐ To illustrate how residence times are calculated for specific lakes
- ☐ To argue that the residence time of a lake increases with area
- ☐ To emphasize that Lake Tahoe's residence time is unusually long

10. According to paragraph 5, major ceremonial events were occasions for

- ☐ leaders to persuade people from the countryside to move into a pueblo
- ☐ farmers to collect information about where crops could be reliably grown
- ☐ people to develop better techniques for producing pottery and crafts
- ☐ people in the early Puebloan era to share farm and craft products

11. According to paragraph 6, which of the following explains the increase in residence time in northwestern Ontario?

- ☐ The amount of water flowing into the lakes has increased.
- ☐ The rate of evaporation has decreased more sharply than the amount of rainfall.
- ☐ The renewal of the lakes' water has slowed due to changes in climate.
- ☐ Plants have required less water from the lakes.

12. According to paragraph 6, residence time is affected by all of the following EXCEPT

- ☐ amount of rainfall
- ☐ rate of evaporation
- ☐ temperature of surrounding air
- ☐ concentration of chemicals in lake water

Paragraph 3: Once all this information has been gathered, it becomes possible to judge whether a lake's flow is mainly due to its surface inputs and outputs or to its underground inputs and outputs. [■] If the former are greater, the lake is a surface-water-dominated lake; if the latter, it is a seepage-dominated lake. [■] Occasionally, common sense tells you which of these two possibilities applies. [■] For example, a pond in hilly country that maintains a steady water level all through a dry summer in spite of having no streams flowing into it must obviously be seepage dominated. Conversely, a pond with a stream flowing in one end and out the other, which dries up when the stream dries up, is clearly surface water dominated. [■]

13. Look at the four squares III that indicate where the following sentence could be added to the passage.

Of course, a lake may be neither surface-water-nor seepage-dominated if, for example, its inputs are predominantly surface and its outputs are predominantly seepage.

Where would the sentence best fit? Click on a square to add the sentence to the passage.

14. Directions: An introductory sentence for a brief summary of the passage is provided below. Complete

the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage.

This question is worth 2 points.

Water enters, remains, and eventually leaves a lake in a variety of ways.

Answer Choices

☐ By measuring the water quantities at each of a lake's inputs and outputs, it can be determined whether water enters the lake mainly from surface or groundwater sources.

☐ Changes in lake level and volume are caused principally by the amount of evaporation of water into the atmosphere.

☐ It is sometimes possible to decide whether a lake is surface water dominated or seepage dominated by simple observation at different seasons.

☐ The average period of time that molecules of water spend in a lake—the residence time—varies from lake to lake and overtime within a particular lake.

☐ The residence times of surface-water-dominated lakes are usually longer than those of seepage-dominated lakes.

☐ The residence time of a lake frequently depends on the kinds of organisms to be found in the lake.

-
1. D
 2. B
 3. C
 4. D
 5. A
 6. B
 7. C
 8. C
 9. A
 10. B
 11. C
 12. D
 13. D
 14. By measuring the...
Changes in lake level...
The residence times...

参考译文:

湖中的水

湖水从哪里来,又流向哪里去呢?湖中的水来自于河流的水,地下水的渗透以及温泉,还有从四周地面流进来的水,另外还有直接降到湖面的雨水.湖中的水通过向外流的河流,渗透进河床以及蒸发离开湖泊.这些都是显而易见的.

当考虑到水的含量的时候问题就会变得更加复杂:水通过上述方式流进和流出的具体含量是多少?发现河流流量的流进和流出量是测量河水进出容量的一种方法.和大气水分的交流是通过发现雨水中得到的水(按雨量的测量规格计算)和那些通过其他方式测得水损失量的蒸发的水的差别来计算的.对于大多数的湖来说,特别是那些被森林环绕的湖,从四周流进湖中的水的含量很少以至于可以忽略不计.湖中水平面的变化不能被河水和大气水量变化的净差量所解释是因为地下水的渗入和渗出.注意一下”净”这个词:测量真正的地下水渗入和渗出量比仅仅推断它们的差量要复杂的多.

一旦所有的这些信息都收集到了,那么判断一个湖的水流量是由表面蒸发决定的还是由地下水进出量决定的就变得可能了.如果前者大,那么湖泊就是一个表面水决定的湖,如果是后者,那么它就是一个渗透水决定的湖.有时候常识会告诉你这两种可能性哪一种是对的.比如说一个多山地区的池塘在整个干燥的夏天都保持着稳固的水含量,而并没有河流流进这个湖泊,那么显然它是一个渗透水决定的池塘.相反,一个池塘有河流流进和流出,河水干枯的时候池塘就干枯,那么这就是一个表面水决定的池塘.

不管怎么说,湖泊是在不停地流进和流出水,它的水不会停留在湖里,或者说不会长久的停留.这个会提升湖泊的停留时间.停留时间指的是特定水分子在湖中停留的平均时间长度,通过计算湖水流量流出湖泊的速度来计算.停留时间是一个平均数,这个时间是特定分子沿着特定路线走过所花的时间,它可能是最快最直接的那一部分,或者在某个回流中花上很长时间.

停留时间变化非常的大,从小湖的几天到大型湖泊的几百年.加利福尼亚州的 **Tahoe** 湖的停留时间就长达 **700** 年,北美大型湖泊的停留时间如 **Superior, Michigan, Huron, Erie**, 和 **Ontario** 湖分别是 **190,100,22,2.5** 和 **6** 年.**Erie** 湖是最低的,尽管它的湖面比 **Ontario** 湖要大,它的容量少于后者的三分之一因为它的平均深度还不到 **20** 米.

一个给定的湖泊的停留时间是一个确定的值.它取决于水流进湖的速率,而水流进湖的速率取决于降雨量和蒸发速率.气候变化(全球变暖的结果?)戏剧性的影响着加拿大西北部的 **Ontario** 湖群中的一些湖泊的停留时间.在 **1970** 到 **1986** 这段时间里,这个地区的降雨量由 **1000** 毫升降到了 **650** 毫升,而同时平均温度的上升提升了蒸发的速率(这个速率指的是水蒸发到大气的速率以及植物的这一过程的速率).在这段研究时间内停留时间的研究结果已经从 **5** 年提升到了 **18** 年.湖水的缓慢更新导致了一系列后果,它导致了溶解的化学物质更加集中,反过来会对湖中的生物造成显著的影响.

Breathing During Sleep

Of all the physiological differences in human sleep compared with wakefulness that have been discovered in the last decade, changes in respiratory control are most dramatic. Not only are there differences in the level of the functioning of respiratory systems, there are even changes in how they function. Movements of the rib cage for breathing are reduced during sleep, making the contractions of the diaphragm more important. Yet because of the physics of lying down, the stomach applies weight against the diaphragm and makes it more difficult for the diaphragm to do its job. However, there are many other changes that affect respiration when asleep.

During wakefulness, breathing is controlled by two interacting systems. The first is an automatic, metabolic system whose control is centered in the brain stem. It subconsciously adjusts breathing rate and depth in order to regulate the levels of carbon dioxide (CO₂) and oxygen (O₂), and the acid-base ratio in the blood. The second system is the voluntary, behavioral system. Its control center is based in the forebrain, and it regulates breathing for use in speech, singing, sighing, and so on. It is capable of ignoring or overriding the automatic, metabolic system and produces an irregular pattern of breathing.

During NREM (the phase of sleep in which there is no rapid eye movement) breathing becomes deeper and more regular, but there is also a decrease in the breathing rate, resulting in less air being exchanged overall. This occurs because during NREM sleep the automatic, metabolic system has exclusive control over breathing and the body uses less oxygen and produces less carbon dioxide. Also, during sleep the automatic metabolic system is less responsive to carbon dioxide levels and oxygen levels in the blood. Two things result from these changes in breathing control that occur during sleep. First, there may be a brief cessation or reduction of breathing when falling asleep as the sleeper waxes and wanes between sleep and wakefulness and their differing control mechanisms. Second, once sleep is fully obtained, there is an increase of carbon dioxide and a decrease of oxygen in the blood that persists during NREM.

But that is not all that changes. During all phases of sleep, several changes in the air passages have been observed. It takes twice as much effort to breathe during sleep because of greater resistance to airflow in the airways and changes in the efficiency of the muscles used for breathing. Some of the muscles that help keep the upper airway open when breathing tend to become more relaxed during sleep, especially during REM (the phase of sleep in which there is rapid eye movement). Without this muscular action, inhaling is like sucking air out of a balloon—the narrow passages tend to collapse. Also there

is a regular cycle of change in resistance between the two sides of the nose. If something blocks the "good" side, such as congestion from allergies or a cold, then resistance increases dramatically. Coupled with these factors is the loss of the complex interactions among the muscles that can change the route of airflow from nose to mouth.

Other respiratory regulating mechanisms apparently cease functioning during sleep. For example, during wakefulness there is an immediate, automatic, adaptive increase in breathing effort when inhaling is made more difficult (such as breathing through a restrictive face mask). This reflexive adjustment is totally absent during NREM sleep. Only after several inadequate breaths under such conditions, resulting in the considerable elevation of carbon dioxide and reduction of oxygen in the blood, is breathing effort adjusted. Finally, the coughing reflex in reaction to irritants in the airway produces not a cough during sleep but a cessation of breathing. If the irritation is severe enough, a sleeping person will arouse, clear the airway, then resume breathing and likely return to sleep.

Additional breathing changes occur during REM sleep that are even more dramatic than the changes that occur during NREM. The amount of air exchanged is even lower in REM than NREM because, although breathing is more rapid in REM, it is also more irregular, with brief episodes of shallow breathing or absence of breathing. In addition, breathing during REM depends much more on the action of the diaphragm and much less on rib cage action.

Paragraphy1: Of all the physiological differences in human sleep compared with wakefulness that have been discovered in the last decade, changes in respiratory control are most dramatic. Not only are there differences in the level of the functioning of respiratory systems, there are even changes in how they function. Movements of the rib cage for breathing are reduced during sleep, making the contractions of the diaphragm more important. Yet because of the physics of lying down, the stomach applies weight against the diaphragm and makes it more difficult for the diaphragm to do its job. However, there are many other changes that affect respiration when asleep.

1. According to paragraph 1, which of the following can be inferred about the diaphragm during sleep?

- ☐ During sleep the diaphragm requires increased movement of the rib cage.
- ☐ The diaphragm helps with breathing as movements of the rib cage decrease during sleep.
- ☐ The diaphragm requires a great amount of pressure to function properly.
- ☐ The diaphragm contributes to the effective functioning of the rib cage.

Paragraphy2: During wakefulness, breathing is controlled by two interacting systems. The first is an automatic, metabolic system whose control is centered in the brain stem. It subconsciously adjusts breathing rate and depth in order to regulate the levels of carbon dioxide (CO₂) and oxygen (O₂), and the acid-base ratio in the blood. The second system is the voluntary, behavioral system. Its control center is based in the forebrain, and it regulates breathing for use in speech, singing, sighing, and so on. It is capable of ignoring or overriding the automatic, metabolic system and produces an irregular pattern of breathing.

2. According to paragraph 2, all of the following are true of the voluntary breathing system EXCEPT:

- ☐ It has its control center in the brain stem.

-
- ☐ It controls breathing for a number of activities during wakefulness.
 - ☐ It is able to bypass the automatic system.
 - ☐ It produces an irregular breathing pattern.

Paragraph 3: During NREM (the phase of sleep in which there is no rapid eye movement) breathing becomes deeper and more regular, but there is also a decrease in the breathing rate, resulting in less air being exchanged overall. This occurs because during NREM sleep the automatic, metabolic system has exclusive control over breathing and the body uses less oxygen and produces less carbon dioxide. Also, during sleep the automatic metabolic system is less responsive to carbon dioxide levels and oxygen levels in the blood. Two things result from these changes in breathing control that occur during sleep. First, there may be a brief cessation or reduction of breathing when falling asleep as the sleeper waxes and wanes between sleep and wakefulness and their differing control mechanisms. Second, once sleep is fully obtained, there is an increase of carbon dioxide and a decrease of oxygen in the blood that persists during NREM.

3. The word **exclusive** in the passage is closest in meaning to

- ☐ consistent
- ☐ perfect
- ☐ partial
- ☐ sole

4. According to paragraph 3, which of the following may occur just before NREM sleep begins?

- ☐ The automatic, metabolic system may increase its dependence on air exchanges.
- ☐ Breathing can stop for a short time as a person falls asleep.
- ☐ An increase in the oxygen level in the blood can occur as sleep becomes fully obtained.
- ☐ The level of carbon dioxide in the blood may drop suddenly.

Paragraph 4: But that is not all that changes. During all phases of sleep, several changes in the air passages have been observed. It takes twice as much effort to breathe during sleep because of greater resistance to airflow in the airways and changes in the efficiency of the muscles used for breathing. Some of the muscles that help keep the upper airway open when breathing tend to become more relaxed during sleep, especially during REM (the phase of sleep in which there is rapid eye movement). Without this muscular action, inhaling is like sucking air out of a balloon—the narrow passages tend to collapse. Also there is a regular cycle of change in resistance between the two sides of the nose. If something blocks the "good" side, such as congestion from allergies or a cold, then resistance increases dramatically. Coupled with these factors is the loss of the complex interactions among the muscles that can change the route of airflow from nose to mouth.

5. What is the author's purpose in stating that **inhaling is like sucking air out of a balloon**?

- ☐ To refute the argument that additional effort is necessary for breathing during sleep
- ☐ To argue that REM sleep is more important than NREM sleep
- ☐ To illustrate the difficulty of breathing during sleep
- ☐ To illustrate how blockage of narrow passages can be prevented during sleep

6. All of the following are mentioned in paragraph 4 as being characteristic of breathing during sleep EXCEPT

- ☐ Relaxation of the muscles involved in the respiratory system
- ☐ Changes in resistance between the two sides of the nose

-
- ☐ Easier airflow in the passages of the upper airway
 - ☐ Absence of certain complex muscle interactions

Paragraph 5: Other respiratory regulating mechanisms apparently cease functioning during sleep. For example, during wakefulness there is an immediate, automatic, adaptive increase in breathing effort when inhaling is made more difficult (such as breathing through a restrictive face mask). This reflexive adjustment is totally absent during NREM sleep. Only after several inadequate breaths under such conditions, resulting in the considerable elevation of carbon dioxide and reduction of oxygen in the blood, is breathing effort adjusted. Finally, the coughing reflex in reaction to irritants in the airway produces not a cough during sleep but a cessation of breathing. If the irritation is severe enough, a sleeping person will arouse, clear the airway, then resume breathing and likely return to sleep.

7. According to paragraph 5, what happens during NREM sleep when inhaling is difficult?

- ☐ There is an immediate, automatic, adaptive increase in breathing effort.
- ☐ The sleeping person takes several inadequate breaths before the breathing effort is adjusted.
- ☐ The coughing reflex causes the breathing effort to adjust.
- ☐ The airways become cleared as the blood removes irritants.

8. It can be inferred from paragraph 5 that a very mild irritation during sleep will likely cause the sleeping person to

- ☐ Increase the breathing effort
- ☐ Wake up and remove the source of irritation
- ☐ Cough while still sleeping
- ☐ Stop breathing temporarily while still sleeping

9. The word considerable meaning to

- ☐ Significant
- ☐ Steady
- ☐ Usual
- ☐ Necessary

10. The word resume in the passage is closest in meaning to

- ☐ Reduce
- ☐ Stop
- ☐ Readjust
- ☐ Restart

Paragraph 6: Additional breathing changes occur during REM sleep that are even more dramatic than the changes that occur during NREM. The amount of air exchanged is even lower in REM than NREM because, although breathing is more rapid in REM, it is also more irregular, with brief episodes of shallow breathing or absence of breathing. In addition, breathing during REM depends much more on the action of the diaphragm and much less on rib cage action.

11. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

- ☐ Because breathing is more shallow and irregular in REM than in NREM, less air is exchanged in REM.

○Breathing in NREM is less effective than breathing in REM because of irregular episodes of rapid breathing during NREM.

○Because breathing is more rapid in NREM sleep than in REM sleep, breathing often becomes shallow.

○Although REM has brief episodes of shallow breathing or lack of breathing, breathing is more rapid than in NREM.

Paragraph1: Of all the physiological differences in human sleep compared with wakefulness that have been discovered in the last decade, changes in respiratory control are most dramatic. Not only are there differences in the level of the functioning of respiratory systems, there are even changes in how they function. Movements of the rib cage for breathing are reduced during sleep, making the contractions of the diaphragm more important. [■] Yet because of the physics of lying down, the stomach applies weight against the diaphragm and makes it more difficult for the diaphragm to do its job.■] However, there are many other changes that affect respiration when asleep.

Paragraph2: [■] During wakefulness, breathing is controlled by two interacting systems. [■]The first is an automatic, metabolic system whose control is centered in the brain stem. It subconsciously adjusts breathing rate and depth in order to regulate the levels of carbon dioxide (CO₂) and oxygen (O₂), and the acid-base ratio in the blood. The second system is the voluntary, behavioral system. Its control center is based in the forebrain, and it regulates breathing for use in speech, singing, sighing, and so on. It is capable of ignoring or overriding the automatic, metabolic system and produces an irregular pattern of breathing.

12. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

To better understand breathing during sleep, it is, however, helpful to first understand how respiration works in general.

Where would the sentence best fit? Click on a square to add the sentence to the passage

13. Directions: From the seven statements below, select the statements that correctly characterize breathing during wakefulness and those statements that correctly characterize breathing during sleep. Drag each answer choice you select into the appropriate box of the table. Two of the answer choices will NOT be used. **This question is worth 3 points.**

Wakefulness



Sleep



Answer Choices

- **The role of the rib cage increases and the role of the diaphragm decreases.**
- **Carbon dioxide in blood rises and oxygen drops.**
- **The coughing reflex is extremely complex.**
- **A great deal of effort is used for breathing.**
- **Upper airways are resistant to colds and allergies.**
- **There is a drop in the volume of air that is exchanged.**
- **Automatic and voluntary respiratory systems are both involved.**

1. B

2. A

3. D

4. B

5. C

6. C

7. B

8. D

9. A

10. D

11. A

12. C

13-14.

W:

The role of the ...

Automatic and voluntary...

S:

Carbon dioxide in...

A great deal of ...

There is a drop in ...

参考译文：

睡眠中的呼吸

在过去的十年里人睡觉是和清醒时生理状态的不同已经被探索出来了，呼吸系统控制方面的变化尤其引人注目。不光是呼吸系统的功能层次方面有所不同，它们发挥作用的方式也出现了变化。胸腔所做的呼吸运动

在睡觉时会减少，使得横膈膜的收缩变得更为重要。尽管由于躺下来的物理作用，胃部压迫横膈膜使得横膈膜难以工作。无论如何，睡眠时有很多其他的变化影响呼吸。

清醒的时候，呼吸受到两个互相影响的系统的控制。第一个是自动更新的系统主要负责控制脑干。它会潜意识的调整呼吸速率和深度来控制二氧化碳和氧气的浓度以及血液中的酸浓度。第二套系统是自发行为系统。它的控制中心在前脑，管理说话，叹气，唱歌等行为时的呼吸。它能忽略或者凌驾于第一套系统使得呼吸形式变得不规则。

在 **NMER**（睡觉时没有快速的眼部活动的阶段）这个阶段中呼吸会变得更深更有规律，但是呼吸频率会降低，导致整个空气交流减少。发生这个是因为在 **NREM** 睡眠阶段中自动更新系统会独自控制呼吸以及身体，以便更少的利用氧气更少的产生二氧化碳。并且，自动更新系统对血液中二氧化碳和氧气的浓度并不敏感。在睡眠中呼吸控制的变化会导致两个结果。第一，睡着时呼吸会有短暂的停止或减少因为睡眠者在睡眠和清醒时及他们不同的控制系统呼吸会有增加或减少。第二，一旦得到了充足的睡眠，在 **NREM** 中就会使得血液中二氧化碳增加而氧气浓度减少。

但这并不是全部的变化。在睡眠的所有阶段中，气道一些变化已经被观察到了。睡眠时它会用两倍的力度去呼吸因为呼吸道的阻力会比较强并且用来呼吸的肌肉的效率会有变化。在呼吸变得更轻松时有一些肌肉会帮助保持上部空气道的畅通，特别是在 **REM** 阶段（就是眼部运动非常剧烈的阶段）。没有这些肌肉运动，呼吸空气就像从气球里吸气一样，狭窄

的通道会面临崩溃。尽管呼吸阻碍在鼻子两侧会有一个规则的循环。如果有时候堵塞了好的一边，比如过敏和感冒引起的堵塞，呼吸阻碍就会显著的提高。加上这些因素就是复杂的互相影响的肌肉系统对呼吸造成损失的原因，这些影响改变了空气从鼻子到嘴巴的流动路线。

其他的呼吸管理系统在睡觉时会明显的停止工作。比如说，在清醒时如果呼吸变得困难的话就会有一个立即自动适应性的呼吸增强（比如戴上面具呼吸时）。但在 **NREM** 状态时这种适应性的反应就会完全消失。只有在这种几次不足的呼吸之后，才会使得血液中二氧化碳含量的显著提升以及氧气含量的降低，这种呼吸调整才会起作用。最后，咳嗽对气道的刺激不会在睡眠中而是造成呼吸的暂停。如果刺激足够严厉，一个睡着的人会惊醒，清理气道，然后继续呼吸并睡觉。

发生在 **REM** 时期的多余的呼吸变化要比发生在 **NREM** 时期的呼吸变化要显著。**REM** 的空气交换量要比 **NREM** 低，尽管 **REM** 中呼吸更加急促，但也更加没有规律，包括一些间断的呼吸暂停。另外，**REM** 时期的呼吸更多取决于横膈膜而不是胸腔的作用。

Moving into Pueblos

In the Mesa Verde area of the ancient North American Southwest, living patterns changed in the thirteenth century, with large numbers of people moving into large communal dwellings called pueblos, often constructed at the edges of canyons, especially on the sides of cliffs. Abandoning small extended-family households to move into these large pueblos with dozens if not hundreds of other people was probably traumatic. Few of the cultural traditions and rules that today allow us to deal with dense populations existed for these people accustomed to household autonomy and the ability to move around the landscape almost at will. And besides the awkwardness of having to share walls with neighbors, living in aggregated pueblos introduced other problems. For people in cliff dwellings, hauling water, wood, and food to their homes was a major chore. The stress on local resources, especially in the firewood needed for daily cooking and warmth, was particularly intense, and conditions in aggregated pueblos were not very hygienic.

Given all the disadvantages of living in aggregated towns, why did people in the thirteenth century move into these closely packed quarters? For transitions of such suddenness, archaeologists consider either pull factors (benefits that drew families together) or push factors (some external threat or crisis that forced people to aggregate). In this case, push explanations dominate.

Population growth is considered a particularly influential push. After several generations of population growth, people packed the landscape in densities so high that communal pueblos may have been a necessary outcome. Around Sand Canyon, for example, populations grew from 5 -12 people per square kilometer in the tenth century to as many as 30 - 50 by the 1200s. As densities increased, domestic architecture became larger, culminating in crowded pueblos. Some scholars expand on this idea by emphasizing a corresponding need for arable land to feed growing numbers of people: construction of small dams, reservoirs, terraces, and field houses indicates that farmers were intensifying their efforts during the 1200s. Competition for good farmland may also have prompted people to bond together to assert rights over the best fields.

Another important push was the onset of the Little Ice Age, a climatic phenomenon that led to cooler temperatures in the Northern Hemisphere. Although the height of the Little Ice Age was still around the corner, some evidence suggests that temperatures were falling during the thirteenth century. The environmental changes associated with this transition are not fully understood, but people living closest to the San Juan Mountains, to the northeast of Mesa Verde, were affected first. Growing food at these elevations is always difficult because of the short growing season. As the Little Ice Age progressed, farmers probably moved their fields to lower elevations, infringing on the lands of other farmers and pushing people together, thus contributing to the aggregations. Archaeologists identify a corresponding shift in populations toward the south and west toward Mesa Verde and away from higher elevations.

In the face of all these pushes, people in the Mesa Verde area had yet another reason to move into communal villages: the need for greater cooperation. Sharing and cooperation were almost certainly part of early Puebloan life, even for people living in largely independent single-household residences scattered across the landscape. Archaeologists find that even the most isolated residences during the eleventh and twelfth centuries obtained some pottery, and probably food, from some distance away, while major ceremonial events were opportunities for sharing food and crafts. Scholars believe that this cooperation allowed people to contend with a patchy environment in which precipitation and other resources varied across the landscape: if you produce a lot of food one year, you might trade it for pottery made by a distant ally who is having difficulty with crops—and the next year, the flow of goods might go in the opposite direction. But all of this appears to have changed thirteenth century. Although the climate remained as unpredictable as ever between one year and the next, it became much less locally diverse. In a bad year for farming, everyone was equally affected. No longer was it helpful to share widely. Instead, the most sensible thing would be for neighbors to combine efforts to produce as much food as possible, and thus aggregated towns were a sensible arrangement.

Paragraph 1: In the Mesa Verde area of the ancient North American Southwest, living patterns changed in the thirteenth century, with large numbers of people moving into large communal dwellings called pueblos, often constructed at the edges of canyons, especially on the sides of cliffs. Abandoning small extended-family households to move into these large pueblos with dozens if not hundreds of other people was probably traumatic. Few of the cultural traditions and rules that today allow us to deal with dense populations existed for these people accustomed to household autonomy and the ability to move around the landscape almost at will. And besides the awkwardness of having to share walls with neighbors, living in aggregated pueblos introduced other problems. For people in cliff dwellings, hauling water, wood, and food to their homes was a major chore. The stress on local resources, especially in the firewood needed for daily cooking and warmth, was particularly intense, and conditions in aggregated pueblos were not very hygienic.

1. The word traumatic meaning to

- ☐ Essential
- ☐ highly stressful
- ☐ highly unusual
- ☐ unwise

2. The word intense in the passage is closest in meaning to

- ☐ strong
- ☐ questionable
- ☐ obvious
- ☐ deliberate

3. According to paragraph 1, before the thirteenth century the people of southwestern North America lived in

- ☐ households that
- ☐ occupied dwellings that were built into the sides of cliffs
- ☐ were largely free to conduct their lives as they pleased
- ☐ enforced common standards of behavior and cooperative conduct within their communities

4. Which of the following best indicates the organization of paragraph 1?

☐ It presents the conditions that caused a change in a population's living patterns and then explains why those conditions got worse.

☐ It identifies certain present-day cultural traditions and rules and then traces them to their roots in the thirteenth century.

☐ It casts doubt on one explanation of the move to pueblos and then introduces an alternative explanation that the passage will defend.

☐ It describes a major change in a population's living patterns and then presents a number of problems that resulted from that change.

Paragraph 3: Population growth is considered a particularly influential push. After several generations of population growth, people packed the landscape in densities so high that communal pueblos may have been a necessary outcome. Around Sand Canyon, for example, populations grew from 5 -12 people per square kilometer in the tenth century to as many as 30 - 50 by the 1200s. As densities increased, domestic architecture became larger, culminating in crowded pueblos. Some scholars expand on this idea by emphasizing a corresponding need for arable land to feed growing numbers of people: construction of small dams, reservoirs, terraces, and field houses indicates that farmers were intensifying their efforts during the 1200s. Competition for good farmland may also have prompted people to bond together to assert rights over the best fields.

5. According to paragraph 3, which of the following was one of the consequences of increasing population densities?

- ☐ People were increasingly crowded into collections of large housing units.
- ☐ People stopped planting crops that have relatively low yields.
- ☐ Domestic buildings were pushed beyond the canyon limits.
- ☐ The natural landscape was destroyed.

6. Which of the sentences below best expresses the essential information in the highlighted sentence in the

passage? Incorrect choices change the meaning in important ways or leave out essential information.

☐ Some scholars even claim that the intensification of farmers' various efforts during the 1200s led to further population growth and the consequent need for more arable land.

☐ Evidence of intensifying agriculture in the 1200s indicates a need to feed a larger population and so extends the argument that a growing population was the cause of the move to pueblos.

☐ During the 1200s, farmers met the demand for more arable land, but they also succeeded in cultivating existing land more intensively with the help of agricultural construction projects.

☐ Some scholars feel strongly that the construction of small dams, reservoirs, terraces, and field houses in the thirteenth century is independent evidence for growth in the number of people.

Paragraph 4: Another important push was the onset of the Little Ice Age, a climatic phenomenon that led to cooler temperatures in the Northern Hemisphere. Although the height of the Little Ice Age was still around the corner, some evidence suggests that temperatures were falling during the thirteenth century. The environmental changes associated with this transition are not fully understood, but people living closest to the San Juan Mountains, to the northeast of Mesa Verde, were affected first. Growing food at these elevations is always difficult because of the short growing season. As the Little Ice Age progressed, farmers probably moved their fields to lower elevations, infringing on the lands of other farmers and pushing people together, thus contributing to the aggregations. Archaeologists identify a corresponding shift in populations toward the south and west toward Mesa Verde and away from higher elevations.

7. The word transition in the passage is closest in meaning to

- ☐ change
- ☐ climate
- ☐ decline
- ☐ problem

8. Why does the author state that "Growing food at these elevations is always difficult because of the short growing season"?

- ☐ To explain why the higher elevations were always relatively sparsely populated
- ☐ To suggest that any worsening of conditions would have significant consequences
- ☐ To emphasize how resourceful the people growing food at these elevations were
- ☐ To argue that farming was not the primary source of food at high elevations

9. According to paragraph 4, what did farmers do in response to falling temperatures during the Little Ice Age?

- ☐ Moved to areas away from Mesa Verde
- ☐ Moved closer to the northeastern part of Mesa Verde
- ☐ Began to cultivate crops adapted to a short growing season
- ☐ Gave up the cultivation of the highest-lying lands

Paragraph 5: In the face of all these pushes, people in the Mesa Verde area had yet another reason to move into communal villages: the need for greater cooperation. Sharing and cooperation were almost certainly part of early Puebloan life, even for people living in largely independent single-household residences scattered across the landscape. Archaeologists find that even the most isolated residences during the eleventh and twelfth centuries obtained some pottery, and probably food, from some distance away, while major ceremonial events were opportunities for sharing food and crafts. Scholars believe that this cooperation allowed people to contend with a patchy environment in which precipitation and other resources varied across the landscape: if you produce a lot of food one year, you might trade it for pottery made by a distant ally who is having difficulty with crops—and the

next year, the flow of goods might go in the opposite direction. But all of this appears to have changed thirteenth century. Although the climate remained as unpredictable as ever between one year and the next, it became much less locally diverse. In a bad year for farming, everyone was equally affected. No longer was it helpful to share widely. Instead, the most sensible thing would be for neighbors to combine efforts to produce as much food as possible, and thus aggregated towns were a sensible arrangement.

10. According to paragraph 5, major ceremonial events were occasions for

- ☐ leaders to persuade people from the countryside to move into a pueblo
- ☐ farmers to collect information about where crops could be reliably grown
- ☐ people to develop better techniques for producing pottery and crafts
- ☐ people in the early Puebloan era to share farm and craft products

11. According to paragraph 5, which of the following was a reason people in the Mesa Verde area formed communal villages in the thirteenth century?

- ☐ The climate in the Mesa Verde area became more locally diverse.
- ☐ Individuals were no longer interested in exchanging pottery and food.
- ☐ Cooperation between people became more important for survival.
- ☐ Bad years of farming began to occur more frequently.

12. Paragraph 5 supports which of the following statements about cooperation among the people in the Mesa Verde area from the eleventh through the thirteenth century?

- ☐ Cooperation allowed many households to give up farming and to specialize in making pottery and crafts.
- ☐ People went from exchanging food and crafts they individually produced to sharing in a cooperative effort to produce as much food as possible.
- ☐ Overtime there was less cooperation as farmers competed with each other for trade with distant areas.
- ☐ Individuals stopped cooperating with each other because they did not have enough food for themselves.

Paragraph 1: In the Mesa Verde area of the ancient North American Southwest, living patterns changed in the thirteenth century, with large numbers of people moving into large communal dwellings called pueblos, often constructed at the edges of canyons, especially on the sides of cliffs. Abandoning small extended-family households to move into these large pueblos with dozens if not hundreds of other people was probably traumatic. Few of the cultural traditions and rules that today allow us to deal with dense populations existed for these people accustomed to household autonomy and the ability to move around the landscape almost at will. [■] And besides the awkwardness of having to share walls with neighbors, living in aggregated pueblos introduced other problems. [■] For people in cliff dwellings, hauling water, wood, and food to their homes was a major chore. [■] The stress on local resources, especially in the firewood needed for daily cooking and warmth, was particularly intense, and conditions in aggregated pueblos were not very hygienic. [■]

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Performing everyday household tasks required more effort.

Where would the sentence best fit? Click on a square to add the sentence to the passage.

14. Directions: An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage.

This question is worth 2 points.

In the thirteenth century, the people in the Mesa Verde area went from living in scattered independent

households to living in large pueblos.

Answer Choices

- Because the thirteenth-century inhabitants of the Mesa Verde area did not have the cultural expectations of today's city dwellers, they easily adapted to communal life.
- Even though living in pueblos had disadvantages, the population of the area had grown so large that there may have been no other arrangement that would have met its needs.
- From the eleventh century onward, farmers began to increase food production on existing farmland and started bringing more land under cultivation.
- A development that contributed to increasing population densities was a cooling climate that led many people to leave the coldest areas and crowd into climatically more favorable areas.
- The primary reason for moving to pueblos was the social benefits associated with communal life.
- People were brought together by the need to produce food cooperatively, as the use of food surpluses in one place to relieve shortages in another ended due to a change in climate.

1. B

2. A

3. C

4. D

5. A

-
6. B
 7. A
 8. B
 9. D
 10. D
 11. C
 12. B
 13. B
 14. A development that...
 15. The primary reason...
 16. People were brought...

参考译文：

迁入普韦布洛

在北美西南部的梅萨维德，由于大量我们称之为普韦布洛人的人涌进这个地区，使得十三世纪这一地区的生活方式发生了改变，他们通常聚集在峡谷特别是悬崖旁边。为了不使数以百计的其他人受到不利影响，他们放弃一些小的家庭搬进了普韦布洛地区。很少的文化传统能够使得高密度的人口达到自治或者在这个地区自由的迁移。除了不得和邻居共享一面墙外，住在人口聚集的普韦布洛地区产生了其他的问题。对于那些住在悬崖上的人，拉水，木头以及食物到家里都是主要的家务。本地资源的压力特别是用于做饭和取暖的燃料特别紧张，这一地区的卫生状况也不容乐观。

考虑到住在这一地区的种种不利条件，为什么十三世纪搬进这一地区的人们分布如此密集？对于这些突然的变迁，考古学家考虑到了拉力因素（使家庭聚在一起）和推力因素（一些外部压力使人们聚集）。在这种情况下，推力的解释更加占上风。

人口增长是一股强大的影响力量。在经历几代的人口增长之后，人们使得这一地区的人口密度达到了如此高的程度以至于普韦布洛社区成为一个必需的结果。在沙丘山谷，比如人口从十世纪的 **5 到 12** 人每平方公里增加到 **1200s** 时的 **30 到 50** 人每平方公里。随着人口密度的增加，民房建筑变得更大，在拥挤的普韦布洛地区达到顶峰，一些学者通过强调增加的人口对应的对可耕种地的需求拓展了这些看法：小型水坝，水库，梯田以及房屋的建设表明 **1200s** 年代的农民一直在努力。对于好的耕地的竞争也会促使这些地区的人们团结起来争取好的土地的权利。

另外一个推动力量是小冰河时代的到来，这种气候现象导致了北半球气温的降低。尽管小冰河时代即将来临，一些证据表明十三世纪这一地区的温度将会降低。这种变迁对环境变化的影响并未受到充分认识，但是住在 **San Juan** 山脉和普韦布洛地区的人们首先受到了影响。丰收季节的缩短使得食物的增长变得困难。随着小冰河时代的到来，农民们可能将他们的耕地迁到更低的海拔地区去，侵犯其他农民的土地并使人口聚集在一起，这也造成了人口的集聚。考古学家确认了普韦布洛地区从南向西从海拔高处逃离造成的人口变化。

在所有这些推动力面前，普韦布洛地区的人们还有另外一个搬进公共村庄的理由：对更多合作的需求。分享和合作是早期普韦布洛人生活的一部分，即使是那些分散在这一地区独立性比较强的家庭也是这样。考古学家发现当有一些主要的分享食物和物品的集会时，即使是最独立的居民在十一世纪和十二世纪的时候也能从很远的地方获得陶器，还可能有食物。学者们相信 这种合作让人们在这种拼凑的但不断变化的环境中能相互竞争：如果你今年生产了很多东西，你就能从很远的联盟交易到陶器，这些有陶器的人可能没有那么多食物一下一年食物的流动方向可能会相反。但是十三世纪这些都发生了变化。尽管每年的气候都无法预测，但是在局部不会有太大变化。在收成差的年份里，每个人都会受影响。如果能广泛分享的话就能帮助减小这种影响。取而代之的是，最明智的是一个地区的人们一起努力创造最多的食物，这样人口聚集的城市就是一个合理的选择。

附录：

这个文档做出的一些大改动：

10.0 版本更新内容

加入了TPO24 的 3 篇文章

9.0 版本更新内容

加入了TPO23 的 3 篇文章

8.2 版本更新内容

加入了TPO18-22 的 15 篇文章

7.0 版本更新内容

加入了TPO17-19 的 9 篇文章

6.5 版本更新内容

加入了TPO16 的 3 篇文章

6.0 版本更新内容

加入了TPO14 的 3 篇文章和TPO15 的 3 篇文章

5.3 版本更新内容

根据新版OG的内容更改了APPLIED ARTS AND FINE ARTS的文章内容小结题和答案

更新了OG第三版的 3 篇阅读文章以及TPO10 TPO11 TPO12 TPO13 的文章
调整排版，方便大家打印

5.0 版本更新内容

更新了TPO7 TPO8 TPO9 的 9 篇阅读文章

4.1 版本更新内容

我们甚至更改了OG之中的几处官方错误：

- ① OG 的 42 页，电子版的 48 页。
6. The word **in exposed** the passage
应该改成 The word **exposed in** the passage.....
- ② OG 的 85 页，电子版的 91 页
12. Directions: characteristics of the 1815-**1860** period
应该改成 characteristics of the 1815-**1850** period
- ③ OG 练习四 Aggression 的第一题是没有正确答案的，详细的解析以及题目的改正方法我也已经写在答案处

乐闻携尔教学培训课程简介

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3. 新托福精选听力真题详解

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2. 新托福口语模版构造及语言表达
3. 新托福精选口语真题详解

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2. 新托福写作文体讲解；议论文写作基本知识讲解；ETS 真题官方范文剖析；

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3. 新托福写作句子逻辑，信号词专项讲解；强化训练对英语“论文型”文章逻辑与思路的快速把握

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2. 分文章体裁进行精读，攻克议论文、说明文和小说三大类阅读文章
3. SAT 独有词汇、句型、修辞及段落大意讲解

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2. 结合并改良部分高中语法内容全面覆盖所有类型考题，特别针对通解无法完美解答的难题（长难句等）

SAT（赛达）填空课程简介

1. 基于 OG + 历年真题的出题规律教学
2. 特征词和逻辑思维方式快速解题法
3. 词义与修辞方式的辨析教学

SAT（赛达）写作课程简介

1. 基于 OG + 历年真题的出题规律教学
2. 为学生精心挑选和整理加工的写作素材，同时引导学员完成自己的常用例证
3. 专业的作文批改团队帮助修改学员语法、论证思维等问题

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1. 基于普林斯顿、巴郎、真题三方面进行教学，着重巩固专业知识与系统化思维体系
2. 根据不同的科目——数学、物理、化学等——分配相关专业硕士及博士毕业教师、相关专业全国竞赛一等奖得主、相关职业技能认证教师进行执教

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- ★熟练进行选项对比

★信手拈来的英语表达思路

★学习计划的制定和被老师敦促而提高的执行力

乐闻携尔教学培训课程方式：

一对一（VIP）课程

一对一（VIP）课程适合希望在有限的时间内提高相应考试成绩，或是自身英语水平的学员，但是时间上无法按照一对多进度听课、或是在一对多课程中听课效果不明显的学员。

一对一（VIP）课程是根据学员的实际水平（或入学测试估测水平）及目标成绩，采用分项目灵活定制授课的方法，由乐闻携尔一流教师进行一对一的教学，灵活安排课程时间及每周进行学习情况的反馈、学习进度的督促与调整、学习方法和知识的巩固和加强。一对一（VIP）课程是以学生自身为导向，加强教师与学生、教师与家长、学生与家长三方面交流沟通，个性化、全面化提升标准化考试成绩及英语水平。

一对一（VIP）课程执行流程

课前咨询

1. 学员进行入学测试，估测实际水平。
2. 课程规划师与家长沟通，从侧面了解学员学习情况、学习习惯以及教学中需要注意的个性化事宜。
3. 课程规划师与学员沟通，从正面了解学员学习情况、学习习惯以及教学中需要注意的个性化事宜。

课程培训

4. 课程规划师为学员量身打造学习计划
5. 课程规划师将学员情况、学习计划及课程安排计划交付相应授课教师
6. 相应授课教师进行正式VIP一对一授课

课下跟踪

7. 课后作业布置及检查
8. 作业详细批改及学习改进建议
9. 每周向家长、学员提供学习反馈并进行总结与建议

课后/临考前模拟考试

10. 提供真题、模考环境、教师监考等全方位模拟考试，检验学员学习成果
11. 总结模考情况并进行详细讲解，提供最后冲刺阶段方案

一对多课程

乐闻携尔一对多课程是经过系统化课程规划进行设置的，课内名师教学引导方法与应试技巧相结合，分科目分模块专项辅导的一位老师与多名学生的课程。

1. 乐闻携尔一对多托福强化课程分为听说读写四项，每项 20 小时，每天 5 小时授课，一共 80 小时。
2. 乐闻携尔一对多托福中学基础提高课程分为听说读写四项，每项 15 小时，每天 5 小时授课，一共 60 小时。

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3. 乐闻携尔一对多文勇的写作逻辑课程为刘文勇老师亲自授课，每天 5 小时授课，一共 10 小时。
 4. 乐闻携尔一对多文勇的托福阅读课程为刘文勇老师亲自授课，每天 5 小时授课，一共 20 小时。
 5. 乐闻携尔一对多托福听力课程，每天 5 小时授课，一共 20 小时。
 6. 乐闻携尔一对多听力口语集中营课程，每天 5 小时授课，一共 15 小时。
 7. 乐闻携尔一对多全英文 SAT 课程为陈佳宝老师亲自全英文授课，每天 5 小时授课，一共 80 小时。

乐闻携尔监狱式学习——日成长计划

提供一站式服务。从阅读、口语到写作，乐闻携尔的老师将会全程指导你，直到你通过考试或者获得 offer。乐闻携尔会带着你理清学习方向，提升思维层次和学习能力，激发你的潜能，并且告诉你如何实践我们所教授的技巧。

Q: 监狱式学习计划怎么理解？

A: 何谓“监狱”，即让你静心学习之所。考虑到大家在很多时候都不能够有效的利用学习时间，因此乐闻携尔特推出监狱式学习计划，让你在我们准备的学习场所学习，从而提高学习效率。

Q: 我的阅读很差，靠这个学习计划就能提高吗？

A: 我们考不过 TOEFL 除了技巧上的问题，真的是因为阅读或者是听力很差吗？不是这样的，所谓“只要功夫深，铁杵磨成针”，阻碍你的是你的惰性，只要真正静下心来学习，何愁不能过。

Q: 要静下心来太难了，网络、手机……这些都是干扰我的东西，要怎么办呢？

A: 乐闻携尔为你解决。我们推出的监狱式学习计划，能够为你提供优质的学习环境，确保你能够不受打扰，安心学习。同时，我们会安排老师监督你的学习，让你没有偷懒的理由！

Q: 要是学习中碰到问题怎么办，老师会帮助解决么？

A: 当然。在学习中碰到的问题，老师会随时为你解决，使你能够提高学习质量。

乐闻携尔 2011 年 11 月及寒假课程

托福精英 (100+) 班

班号	班级名称	上课日期	学时	具体时间	上课地点	报名价格
TB004	托福精英 (100+) 班	2011/11/12-2011/12/4	80 小时	每周六、日 8:30-14:10,15:00-20:40	北京市海淀区苏州街 18 号长远天地大厦 A1 座 1606	4100 元
TB005	托福精英 (100+) 班	2011/12/10-2012/1/1	80 小时	每周六、日 8:30-14:10,15:00-20:40	北京市海淀区苏州街 18 号长远天地大厦 A1 座 1606	4100 元

托福精英 (100+) 住宿班

班号	班级名称	上课日期	学时	具体时间	上课地点	报名价格
TB006	托福精英 100+住宿班	2011/12/12-11/12/30	80+70 小时	每周一至周五 9:00-22:00, (19 天)	北京市海淀区苏州街 18 号长远天地大厦 A1 座 1606	9800 元
TB007	托福精英 100+住宿班	2012 年 1/13-12/1/20	80 小时	每周一至周五 9:00-22:00, (8 天)	北京市海淀区苏州街 18 号长远天地大厦 A1 座 1606	6800 元

托福精品班

班号	班级名称	上课日期	学时	具体时间	上课地点	报名价格
TJ001	托福精品班	2011/10/29-2011/11/6	40 小时	每周六、日 8:30-14:10,15:00-20:40	北京市海淀区苏州街 18 号长远天地大厦 A1 座	120 元
TJ002	托福精品班	2011/11/19-11/11/27	40 小时	每周六、日 8:30-14:10,15:00-20:40	北京市海淀区苏州街 18 号长远天地大厦 A1 座	1580 元
TJ003	托福精品班	2011/12/17-11/12/25	40 小时	每周六、日 8:30-14:10,15:00-20:40	北京市海淀区苏州街 18 号长远天地大厦 A1 座	1580 元

SAT 模考班

班号	班级名称	上课日期	学时	具体时间	上课地点	报名价格
SG002	SAT 模考 保分班	2011/10/3-2011/10/28 (一、三、五模考 二、四自习答疑)	120 小时	每天 9:00-12:30,14:30-18:30	北京市海淀区苏州街 18 号长远天地大厦 A1 座 1606	8000 元
SG003	SAT 模考 保分班	2011/11/4-2011/11/30 (16 天模考+8 天自习 答疑+3 天休息)	120 小时 +80 小时	每天 9:00-12:30,14:30-18:30	北京市海淀区苏州街 18 号长远天地大厦 A1 座 1606	8000 元
SAT04	SAT 模考班	随时报名随时上课	每天 7.5 小时	每天 9:00-12:30,14:30-18:30	北京市海淀区苏州街 18 号长远天地大厦 A1 座 1606	350 元/天

元旦集训班

班号	班级名称	上课日期	学时	具体时间	上课地点	报名价格
TR004	元旦集训班-阅读单项	2011/12/31-2012/1/2	15 小时	每天 9:00-11:30,12:30-15:00	北京市海淀区苏州街 18 号长远天地大厦 A1 座	1580 元
TK002	元旦集训班-听口集中营	2011/12/31-2012/1/2	15 小时	每天 15:30-18:00,18:00-21:00	北京市海淀区苏州街 18 号长远天地大厦 A1 座	1580 元
XL006	元旦集训营-写作逻辑	2011/12/31-2012/1/1	10 小时	每天 15:30-18:00,18:00-21:00	北京市海淀区苏州街 18 号长远天地大厦 A1 座	1280 元

联系人：

王甜老师 wangtian@lasedu.com 13581609715

一、上课教室乘车路线：

长远天地校区

乘坐地铁：

乘坐地铁 10 号线到苏州街下车步行 185 米

乘坐公交：

1 乘坐 304、307、386、611、630、671、944、运通 109 到**海淀南路**，下车步行 190 米

2 乘坐 302、304、307、361、386、394、528、611、630、671、528、运通 114 到**海淀南路西口**，下车步行 212 米

3 乘坐 26、302、374、394、528、528、运通 110、运通 114、运通 118 到**北京市地震局**，下车步行 239 米

4 乘坐 681 路到**海淀中街**下车步行 376 米



二、报名及咨询：

报名方式：乐闻携尔 2011 年暑假班课程报名电话: 010-82650150 ; 13581609715 ; 王甜老师

咨询方式：咨询电话：010-82650150 ;

三、交费方法

(1) 在您提交报名信息并确认后，请将相关培训费用汇至以下账户，汇款后致电北京乐闻携尔科技有限公司工作人员。

账户名称：刘新娟

开户银行：北京银行中关村海淀园支行

开户行账号：6210300003088033

银行：中国工商银行

户名：刘新娟

帐号：6212260200000521977

开户行：中国工商银行北京双榆树西里支行

(2) 在您提交报名信息并确认后，请将相关培训费用汇至以下支付宝账户，汇款后致电北京乐闻携尔科技有限公司工作人员。

支付宝账户：liuwenyong@lasedu.com

(3) 在您提交报名信息并确认后，请前往以下地址进行现金交费。

交费地址：北京市海淀区苏州街 18 号长远天地大厦 A1 座 1606