

TPO 22

READING

Paragraph 1:

1. According to paragraph 1, each of the following is true of *Spartina alterniflora* EXCEPT:

- A. It rarely flowers in salt marshes.
- B. It grows well in intertidal zones.
- C. It is commonly referred to as cordgrass.
- D. It occurs naturally along the Gulf Coast and the Atlantic coast of the United States.

Paragraph 2:

2. According to paragraph 2, a major reason why natural salt marshes are so productive is that they are

- A. inhabited by long-lived seaweed and marsh grasses that reproduce gradually
- B. kept clear of excess plant material by the tides
- C. regularly supplied with high levels of nutrients
- D. 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.

- A. Insects feed only on dead cordgrass, while most other marsh inhabitants feed on live cordgrass.

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.

- B. The marsh is a good habitat for insects, but a relatively poor one for birds and animals.
- C. Although cordgrass provides food for birds and animals, it gives insects both food and a place to live.
- D. Cordgrass provides food for numerous insects, birds, and other animals.

Paragraph 3:

4. What is the organizational structure of paragraph 3?
 - A. It makes a general claim about *Spartina* and then provides specific evidence to defend that claim against objections to the claim.
 - B. It presents a general characterization of *Spartina* and then describes particular features on which this characterization is based.
 - C. It reports a widely held view about *Spartina* and then considers evidence both for and against that view.
 - D. 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
 - A. unusually
 - B. dangerously
 - C. surprisingly
 - D. highly

6. According to paragraph 3, one reason that *Spartina* is able to compete in marsh environments so successfully is its ability to
 - A. alter the substrate in which it grows
 - B. convert sulfides into a usable form of sulfur
 - C. grow and produce seeds while floating on the surface of the water
 - D. produce carbon dioxide with great efficiency

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.

Paragraph 4:

7. Paragraph 4 suggests that where *Spartina* occurs naturally, an established stand of it will eventually

- A. create conditions in which it can no longer survive
- B. get washed away by water flowing through the deep channels that form around it
- C. become adapted to brackish water
- D. take over other grass species growing in the area

8. According to paragraph 4, in its natural habitats, *Spartina* helps estuaries by

- A. controlling marshland decline
- B. decreasing the substrate elevation
- C. reducing the brackishness of the water
- D. increasing the flow of water into the estuary

Paragraph 5:

Paragraph 6:

9. The word "modifies" in the passage is closest in meaning to

- A. creates
- B. changes
- C. grows on
- D. breaks down

10. The word "Efforts" in the passage is closest in meaning to

- A. Laws
- B. Suggestions
- C. Attempts
- D. Failures

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

11. According to paragraph 5, *Spanina* negatively affects wildlife in estuaries by

- A. trapping fish and waterfowl in sediment
- B. preventing oysters from transplanting successfully
- C. turning mudflats into high marshes and salt meadows
- D. 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

- A. flooding plants
- B. cutting plants down repeatedly
- C. applying herbicides
- D. introducing predatory insects

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.

13. Look at the four squares [A] [B] [C] and

Spartina is an exceedingly

[D] 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. *Spartina alterniflora*, 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.

A. *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.

B. *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.

C. 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.

D. The dead leaves of *Spartina* become food for a wide variety of marine organisms.

E. 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.

competitive plant. A 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. B *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). C Because they lack oxygen, marsh sediments are high in sulfides that are toxic to most plants. D *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.

Paragraph 1:

1. What can be inferred from paragraphs 1 and 2 about the effect of photography on nineteenth-century painting?
- A. Photography did not significantly change the way people looked at reality.
 - B. Most painters used the images of the camera obscura in preference to those of the daguerreotype.
 - C. Painters who were concerned with realistic or naturalistic representation were particularly influenced by photography.
 - D. Artists used the long-awaited invention of photography in just the ways they had expected to.

Paragraph 2,3,4:

2. The word "duplicated" in the passage is closest in meaning to
- A. copied
 - B. replaced
 - C. handled
 - D. clarified
3. The phrase "Its general effect" in the passage refers to
- A. the camera lens
 - B. the calotype
 - C. the etching
 - D. the engraving
4. According to paragraphs 2 and 3 which of the following did the daguerreotype and the calotype have in common?
- A. They were equally useful for artists.
 - B. They could be reproduced.
 - C. They produced a permanent image
 - D. They were produced on treated paper.

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.

Paragraph 5:

5. The word "authenticity" in the passage is closest in meaning to
- A. improvement
 - B. practicality
 - C. genuineness
 - D. repetition

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.

Paragraph 6:

6. What point does the author make in paragraph 6?
- A. Paintings became less expensive because of

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

competition with photography.

B. Photography, unlike painting, was a type of portraiture that even ordinary people could afford.

C. Every style of painting was influenced by the invention of photography.

D. The daguerreotype was more popular than the calotype.

Paragraph 7:

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

A. unable

B. embarrassed

C. unlikely

D. 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.

A. Photography did not replace other fine arts because people felt the image looked cheap in relation to the other arts.

B. Photography was not considered a true art because people could use it to create many images cheaply.

C. Photography was so cheap and readily available that it could be purchased by people who were too poor to purchase fine art.

D. 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:

9. The word "unanticipated" in the passage is closest in meaning to

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

- A. indirect
- B. not expected
- C. unquestionable
- D. beneficial

10. The word "accidental" in the passage is closest in meaning to

- A. surprising
- B. unintentional
- C. realistic
- D. unusual

11. Which of the following is mentioned in paragraph 8 as a benefit that artists derived from photography?

- A. It inspired artists to use technological themes in their painting.
- B. It lent prestige to those artists who used photographs as models for paintings
- C. It provided artists with new types of equipment to speed up the painting process.
- D. 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

- A. provided painters with new insights into how humans and animals actually move
- B. showed that representing movement could be as interesting as portrait art
- C. increased the appeal of painted portraiture among the wealthy
- D. influenced artists to improve techniques for painting faster

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

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.

Unlike most major inventions, photography had been long and

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. The invention of photography had a significant impact on the art of painting in the nineteenth century.

Answer Choices

A. For a brief time, artists preferred not to paint natural or realistic images that would have to compete with photographs.

B. Before photography, Canaletto had used the camera obscura to project scenes onto a paper or glass plate.

C. The photographic processes of Louis Daguerre and William Henry Talbot both made permanent images, but only Talbot's process allowed making multiple copies.

D. The work of Eadweard Muybridge and Etienne-Jules Marey established photography both as a science and as an art.

E. 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.

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 Allende Meteorite

Sometime after midnight on February 8, 1969, a large, bright meteor entered

Paragraph 1:

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

- A. sight
- B. sake
- C. success
- D. 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?

- A. It was almost ten miles wide.
- B. It was the biggest meteor ever to hit Mexico.
- C. It weighed more than two tons.
- D. It broke into more pieces than most meteors do.

Paragraph 2:

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.

- A. 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.
- B. 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.
- C. By breaking open Allende meteorites, scientists were able to find out what the solar nebula was made of.
- D. Allende meteorites were filled with material formed almost entirely from interstellar gas and dust.

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.

Paragraph 3:

4. The word "allusion" in the passage is closest in meaning to
- A. addition
 - B. modification
 - C. resemblance
 - D. reference
5. The word "enigmatic" in the passage is closest in meaning to
- A. dangerous
 - B. mysterious
 - C. interesting
 - D. surprising
6. According to paragraph 3, what does the presence of grains inside some of the chondrules indicate?
- A. The chondrules were formed of silicate material.
 - B. The chondrules were formed at high temperatures and then cooled rapidly.
 - C. The grains were formed in huge areas of the solar nebula
 - D. The grains were formed after the chondrules were fused together into chondrites.

Paragraph 4:

7. According to paragraph 4, all of the following are true about the minerals found in the refractory inclusions EXCEPT:
- A. These minerals are among the most resistant to melting of all the major elements in the solar nebula.
 - B. These minerals are believed to be some of the

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

first elements to have condensed out of the solar nebula.

C. These minerals are among the least commonly found elements on Earth.

D. These elements occur in the order that scientists would have predicted.

Paragraph 5:

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

A. pure

B. solid

C. ordinary

D. trapped

9. According to paragraph 5, which of the following is indicated by studies of the mixture holding the inclusions together?

A. Large amounts of this material were formed by condensation or melting in the nebula.

B. This material contains more iron and iron sulfide than had previously been thought.

C. This material is very similar to the material from which the refractory inclusions are made

D. The grains in this material are made from the same elements as chondrules are.

Paragraph 6:

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"?

A. To show how difficult it is to compare the composition of a meteorite with that of the Sun

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

- B. 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
- C. To identify the most common element in both the Sun and meteorite specimens
- D. To emphasize how much larger the Sun is than any meteorite specimen

11. According to paragraph 6, the composition of chondritic meteorites differs from the composition of the Sun primarily in

- A. containing nebular matter
- B. containing many fewer atoms of iron
- C. the relative amount of volatile elements
- D. 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?

- A. It indicates what the matter from which planets were formed was probably like.
- B. It may explain how the Sun originally developed.
- C. It helps scientists estimate the variations in the chemical composition of different meteors.
- D. It suggests that most meteorites may contain large quantities of volatile elements.

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. Studies of the Allende meteorite provided information about the composition of chondritic

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.

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

meteorites and their possible origin.

Answer Choices

A. When Allende entered Earth's atmosphere, it broke into thousands of pieces called chondrites because they look like glassy, black seeds.

B. The mineral content of chondrules suggests that they were probably formed in isolated regions of the nebula that remained much hotter than the rest.

C. 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.

D. 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.

E. 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.

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.

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LISTENING

1. Why does the student go to the man's office?
 - A. To get some advice on an article that she is writing
 - B. To find out about getting a job on the student newspaper
 - C. To protest the university's decision about a statue
 - D. To complain about an article in the student newspaper

2. What points does the man make about the article they are discussing? Click on 2 answers
 - A. It was the personal viewpoint of the writer
 - B. It was based on research by one of the editors
 - C. It was meant to be humorous.
 - D. Not many people have read it.

3. What is the student's opinion of the editorial's representation of Sally Smith?
 - A. She agrees it was accurate.
 - B. She believes it was not respectful.
 - C. She believes that the editor was referring to someone else.
 - D. She agrees that the editorial's focus on Sally's background is relevant

4. What does the man imply about the university's student government organization?
 - A. Its reputation has been damaged by recent events.
 - B. Its leaders need to be more careful about what they say in public about the university.
 - C. It will probably benefit from what the newspaper printed about it
 - D. Its communications with the public have recently become more effective

5. What does the woman imply when she says this
 - A. She does not think that she is capable of writing the response herself.
 - B. She has already prepared a response to give to the editor
 - C. She is worried that Sally is too upset to participate.
 - D. She is not convinced that the editor will agree to the request.

6. What does the professor mainly discuss?
 - A. Sudden population increases in early states
 - B. Possible reasons for the formation of early states

- C. Consequences of agricultural land shortages in ancient Egypt
- D. Common political problems of chiefdoms

7. According to the professor, what are two typical characteristics of a band? Click on 2 answers.

- A. It is the smallest type of group.
- B. It is the most sociopolitically complex type of group
- C. It practices intensified agriculture
- D. It is able to meet its own basic needs.

8. What does the professor say is a characteristic feature of states?

- A. States often damage the environment of the area they occupy
- B. States engage in trade to obtain necessary goods for their population.
- C. States often undergo sudden changes in population.
- D. States manage food production for the entire population.

9. What reason for prehistoric social problems does the professor mention?

- A. Competition for resources
- B. Poor decisions by the ruling classes
- C. The existence of several conflicting legal codes
- D. Cultural differences between neighboring states

10. Why does the professor mention upper, middle, and lower classes?

- A. To explain why formal legal codes were developed
- B. To explain what factors caused the destruction of several early states
- C. To stress the importance of agricultural workers
- D. To further describe the organization of states

11. What is the professor's opinion about the environmental approach?

- A. It will remain popular for a long time.
- B. It does not help explain how early states formed.
- C. Some evidence supports it, but other evidence contradicts it
- D. It should be applied when analyzing hierarchies

12. What is the main purpose of the lecture'?

- A. To compare solutions to the greenhouse-gas problem
- B. To examine methods used to study star formation in other solar systems
- C. To discuss evidence for liquid water on young Earth and Mars
- D. To discuss attempts to solve a puzzle related to the Sun

13. Why is geological evidence of liquid water on Earth and Mars three to four billion years ago problematic?

- A. It suggests that the solar system is younger than it could possibly be.
- B. It suggests that the young Sun was less bright than it is today.
- C. It challenges the prevailing model of star formation.
- D. It contradicts theories about the beginning of the universe

14. Why did the greenhouse-gas solution fail to explain the early presence of liquid water on Earth and Mars? Click on 2 answers.

- A. The types of gases that were present in their atmospheres could not have caused temperatures to rise
- B. There was insufficient carbon dioxide in their atmospheres to produce a greenhouse effect.
- C. Solar radiation would have destroyed the ammonia in their atmospheres.
- D. Clouds of ammonia would have lowered temperatures by blocking out sunlight.

15. Why does the professor mention the solar wind?

- A. To explain a way the Sun is losing mass
- B. To point out that it was less intense billions of years ago
- C. To suggest a reason for early climate differences between Earth and Mars
- D. To explain the importance of solving the faint-young-Sun paradox

16. What factor did astronomers consider when calculating the required solar mass for liquid water to exist on Earth and Mars?

- A. The young Sun lost mass at a slower rate than it currently does
- B. The young Sun was closer to the planets than it currently is
- C. The young Sun had less solar wind activity than it currently does
- D. The young Sun comprised greater amounts of helium than it currently does

17. What is the professor's attitude about the bright-young-Sun solution?

- A. He is surprised that it is not more widely accepted

- B. He feels that it raises too many unanswerable questions
- C. He is confident that future research will determine whether it is true.
- D. He expects that other possible solutions to the paradox will be proposed.

18. Why does the man go to see the professor?

- A. To discuss his impressions of a recent piano concert
- B. To ask how to revise a paper he is writing
- C. To get approval to write a paper about his grandmother's life
- D. To find out why he received a poor grade on a paper he wrote

19. What did the man not understand about his professors written comments?

- A. What she considers a weakness in his writing style
- B. What she means by the terms "broader context"
- C. Which period of music history she wants him to write about
- D. Why- she prefers that he write about an unfamiliar subject

20. What does the man say about his grandmother's music career?

- A. She studied both classical music and jazz in school.
- B. She planned a career as a jazz musician.
- C. She performed jazz music for most of her career.
- D. She now performs both classical music and jazz.

21. Why does the professor ask the man to come early to the next class'?

- A. So that he can hand in a revised draft of his paper
- B. So that he can tell her the date and time of his choir concert
- C. So that they can continue their discussion of the man's paper
- D. So that he can interview the professor about women's contributions to music

22. What does the professor mean when she says this

- A. She will give the man extra credit if he rewrites his paper.
- B. She is willing to extend the deadline for the mans paper.
- C. The man will probably not be able to finish his paper within a week.
- D. The man should have started his paper sooner

23. What is the lecture mainly about?

- A. A proposal to identify all the animals that became extinct during the Pleistocene epoch
- B. A strategy for reintroducing native plants to an ecosystem
- C. A process for identifying alternative habitats for large animals
- D. A proposal to re-create features of ecosystems of the Pleistocene epoch

24. According to the professor, what are the two main goals of Pleistocene rewinding? Click on 2 answers

- A. To restore some evolutionary processes that ended during the Pleistocene epoch
- B. To help prevent the extinction of certain species of mega fauna
- C. To increase populations of native animal species in the western United States
- D. To create a living laboratory where animal interactions can be observed

25. According to the professor, how did the American cheetah influence the pronghorn antelope during the Pleistocene epoch?

- A. The cheetah prevented the antelope's population from growing too large.
- B. The cheetah was a factor in the development of the antelope's speed.
- C. The cheetah dispersed the seeds of plants that the antelope needed to survive.
- D. The cheetah caused the antelope to migrate out of the western United States.

26. What point does the professor make when she discusses the manna tree?

- A. The feeding habits of large animals could help revive some diminishing plant species.
- B. The climate has changed in North America since the Pleistocene epoch
- C. Mass extinctions of animals are generally preceded by mass extinctions of plants.
- D. The manna tree has changed very little since the Ice Age.

27. Why does the professor say that plants and small animals have continued to evolve since the Pleistocene?

- A. To indicate why the western United States is well suited for Pleistocene rewilding
- B. To suggest a way to balance an ecosystem using Pleistocene rewilding
- C. To identify a potential problem with the Pleistocene rewilding concept
- D. To explain how the idea for Pleistocene rewilding came about

28. What does the professor mean when she says this

- A. Pleistocene rewilding has been tried before without success

- B. Pleistocene rewilding should be tried with just a few species
- C. Pleistocene rewilding has already been thoroughly researched
- D. Pleistocene rewilding is another form of human interference.

29. What does the professor mainly discuss?

- A. The changing opportunities for musicians in the early twentieth century
- B. The history of film music from the early twentieth century to the present
- C. The types of music that accompanied silent films in the early twentieth century
- D. The influence of new sound technology on the film industry

30. Why does the professor point out that 20,000 jobs for musicians disappeared at the end of the silent-film era?

- A. To explain that many movie theaters closed at the end of the silent-film era
- B. To explain that live music had lost popularity
- C. To illustrate the huge demand for musicians during the silent-film era
- D. To emphasize the number of jobs created by the production of sound movies

31. What is the professor's attitude about the view that music was used in movie theaters to cover up the noise of the film projector?

- A. He is surprised that anyone would have that view.
- B. He doubts that film projectors were very noisy.
- C. He is convinced that it was true for most of the silent-film era.
- D. He doubts that it can fully explain why music was played.

32. What does the professor find unusual about the music accompanying early silent films?

- A. It was very difficult to perform.
- B. It did not relate to the action on the screen.
- C. It was usually improvised by piano players
- D. It was selected by the filmmakers.

33. What does the professor imply about the use of organs to accompany silent films?

- A. The audience preferred organ music over other types of music
- B. Organs were too expensive for many theater owners.
- C. It delayed the introduction of recorded music in theaters.
- D. It led to a loss of employment for many musicians.

34. According to the professor, why was it difficult for musicians to get a job at one of the film studios? Click on 2 answers.

- A. Musicians who had played in movie theaters were not usually hired by the film studios.
- B. There were more musicians looking for jobs than there were jobs available at the film studios.
- C. Musicians had to be very talented to meet the demands of the film studios.
- D. The film studios preferred musicians who had some acting experience

SPEAKING

1. Talk about one way your personality has changed since you were a child. Use examples and details to explain your answer. 【人物】

2. Do you agree or disagree with the following statement: Children should be required to learn practical skills in school, such as cooking or personal finance, in addition to academic subjects. Use details and examples to explain your opinion. 【agree】

3. University Announces Change in Campus Tour Guides

Traditionally, staff members from the admissions office have led the campus tours for secondary-school students who are considering attending the university. Beginning next semester, however, current students will lead these guided walks around the campus instead. The staff of the admissions office no longer has time to lead the campus tours. We need to focus our resources on our other responsibilities? Explains Christine Tanner, the director of admissions. Furthermore, we feel that current students will offer unique and valuable insight to our visitors during these campus tours.

The woman expresses her opinion about the university's plan. Briefly summarize the plan. Then state her opinion about the plan and explain the reasons she gives for holding that opinion.

4. Irrational Commitment

When people have devoted time or resources to a certain project, they generally want to see it succeed. However, they may grow so attached to the idea of a successful outcome that even if it starts to look like the project will fail and the disadvantages are outweighing the benefits, they will nevertheless increase their commitment to the project rather than give up. This is known as irrational commitment. This tendency to continue with a project when it would make better sense to quit can be especially strong when people feel they may be judged by others for their eventual success or failure with the project.

Explain how the example from the professor's lecture illustrates irrational commitment.

5. Briefly summarize the problem the speakers are discussing. Then state which solution you would recommend. Explain the reasons for your recommendation.

6. Using the example of the mole, explain two different types of underground adaptation.

WRITING

TASK 1

Ethanol fuel, made from plants such as corn and sugar cane, has been advocated by some people as an alternative to gasoline in the United States. However, many critics argue that ethanol is not a good replacement for gasoline for several reasons.

First, the increased use of ethanol fuel would not help to solve one of the biggest environmental problems caused by gasoline use: global warming. Like gasoline, ethanol releases carbon dioxide into the atmosphere when it is burned for fuel and carbon dioxide is greenhouse gas: it helps trap heat in the atmosphere. Thus, ethanol offers no environmental advantage over gasoline.

Second, the production of significant amounts of ethanol would dramatically reduce the amount of plants available for uses other fuel. For example, much of the corn now grown in the United States is used to feed farm animals such as cows and chickens. It is estimated that if ethanol were used to satisfy just 10 percent of the fuel needs in the United States, more than 60 percent of the corn currently grown in the United States would have to be used to produce ethanol. If most of the corn were used to produce ethanol, a substantial source of food for animals would disappear.

Third, ethanol fuel will never be able to compete with gasoline on price. Although the prices of ethanol and gasoline for the consumer are currently about the same, this is only because of the help in the form of tax subsidies given to ethanol producers by the United States government. These tax subsidies have cost the United States government over \$11 billion in the past 30 years. If the United States government were to stop helping producers in this way, the price of ethanol would increase greatly.

Summarize the points made in the lecture, being sure to explain how they support/contradict specific points made in the reading passage.

TASK 2

Teachers should not make their social or political views known to students in the classroom.