TOEFL iBT Test 2

READING

This section measures your ability to understand academic passages in English.

There are three passages in the section. Give yourself 20 minutes to read each passage and answer the questions about it. The entire section will take 60 minutes to complete.

You may look back at a passage when answering the questions. You can skip questions and go back to them later as long as there is time remaining.

Directions: Read the passage. Then answer the questions. Give yourself 20 minutes to complete this practice set.

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 example, 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.

Directions: Now answer the questions.

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 soils?

   Ⓐ 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 example, 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 paragraph 6? 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 can be added to the passage.

Certain minerals are more likely to be accumulated in large quantities than others.

Where would the sentence best fit?

Ⓐ Scientists have known for some time that certain plants, called hyperaccumulators, can concentrate minerals at levels a hundredfold or greater than normal. **Certain minerals are more likely to be accumulated in large quantities than others.** 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.

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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.

Write your answer choices in the spaces where they belong. You can either write the letter of your answer choice or you can copy the sentence.

Plants need to absorb certain minerals from the soil in adequate quantities for normal growth and development.

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Answer Choices

A Some plants can tolerate comparatively low levels of certain minerals, but such plants are of little use for recycling nutrients back into depleted soils.

B When plants do not absorb sufficient amounts of essential minerals, characteristic abnormalities result.

C 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.

D Though beneficial in lower levels, high levels of salts, other minerals, and heavy metals can be harmful to plants.

E 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.

F 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.

Directions: Read the passage. Then answer the questions. Give yourself 20 minutes to complete this practice set.

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 were 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.

Directions: Now answer the questions.

PARAGRAPH 1

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.

15. 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.
Ⓑ The 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 were 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.

16. 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

17. The word "overwhelming" in the passage is closest in meaning to
    - Ⓐ powerful
    - Ⓑ favorable
    - Ⓒ current
    - Ⓓ reasonable

18. 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.

19. 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.

20. The word "implements" in the passage is closest in meaning to
   Ⓐ skills
   Ⓑ tools
   Ⓒ opportunities
   Ⓓ practices

21. 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

22. 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.

23. Which of the sentences below best expresses the essential information in the highlighted sentence in paragraph 4? 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.

24. The word "undisputed" in the passage is closest in meaning to

Ⓐ mysterious
Ⓑ unexpected
Ⓒ acknowledged
Ⓓ significant

25. 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.

26. 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 a 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 were 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.

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

Later theories concentrated on journeys in the other direction.

Where would the sentence best fit?

Ⓐ 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 were variously thought to have come from North America, South America, Egypt, Israel, and India, as well as Southeast Asia. **Later theories concentrated on journeys in the other direction.** 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.

Ⓑ 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 were 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. **Later theories concentrated on journeys in the other direction.** 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.

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28. **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.

Write your answer choices in the spaces where they belong. You can either write the letter of your answer choice or you can copy the sentence.

Together, Melanesia, Micronesia, and Polynesia make up the region described as the Pacific islands, or Oceania.

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Answer Choices

A Many theories about how inhabitants first came to the islands have been proposed, including the idea that North and South Americans simply drifted across the ocean.

B Although early colonizers of the islands probably came from agriculture-based societies, they were obliged to adopt an economy based on fishing.

C New evidence suggests that, rather than being isolated, Pacific islanders engaged in trade and social interaction with peoples living in Southeast Asia.

D Computer simulations of the winds and currents in the Pacific have shown that reaching the Pacific Islands was probably much easier than previously thought.

E 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.

F Using linguistic and archaeological evidence, anthropologists have determined that the first Pacific islanders were Austronesian people from Southeast Asia.

Directions: Read the passage. Then answer the questions. Give yourself 20 minutes to complete this practice set.

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.

Directions: Now answer the questions.

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."

29. The word "significant" in the passage is closest in meaning to
    - Ⓐ numerous
    - Ⓑ important
    - Ⓒ unexplained
    - Ⓓ sudden

30. The word "relatively" in the passage is closest in meaning to
    - Ⓐ surprisingly
    - Ⓑ collectively
    - Ⓒ comparatively
    - Ⓓ characteristically

31. 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

32. 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

PARAGRAPHS 2 & 3

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.

33. 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?

34. 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.

35. 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.

36. 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.

37. Which of the sentences below best expresses the essential information in the highlighted sentence in paragraph 5? 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 formation 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).

38. 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

39. "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.

40. 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. ■

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

It is relatively rare because the fossilization of soft-bodied animals requires a special environment.

Where would the sentence best fit?

Ⓐ 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. **It is relatively rare because the fossilization of soft-bodied animals requires a special environment.** 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. ■

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42. **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.

Write your answer choices in the spaces where they belong. You can either write the letter of your answer choice or you can copy the sentence.

The term "Cambrian explosion" refers to the geologically brief period during which all modern animal groups evolved.

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Answer Choices

[A] The Cambrian period is significant because it marks the emergence of eukaryotic life-forms—organisms that have cells with true nuclei.

[B] 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.

[C] 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.

[D] 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.

[E] 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.

[F] 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.