**Test 3 Reading Section**

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| **Passage**  The following reading passage was adapted from *Environmental Science—A Study of Interrelationships,* Eleventh Edition by Elson D. Enger and Bradley F. Smith, McGraw-Hill Companies, 2008.  **Symbiotic Relationships**  **Symbiosis** is a close, long-lasting physical relationship between two different species. In other words, the two species are usually in physical contact and at least one of them derives some sort of benefit from this contact. There are three different categories of symbiotic relationships: parasitism, commensalism, and mutualism. **Parasitism** is a relationship in which one organism, known as the parasite, lives in or on another organism, known as the host, from which it derives nourishment. Generally, the parasite is much smaller than the host. Although the host is harmed by the interaction, it is generally not killed immediately by the parasite, and some host individuals may live a long time and be relatively little affected by their parasites. Some parasites are much more destructive than others, however. Newly established parasite-host relationships are likely to be more destructive than those that have a long evolutionary history. With a longstanding interaction between the parasite and the host, the two species generally evolve in such a way that they can accommodate one another. It is not in the parasite’s best interest to kill its host. If it does, it must find another. Likewise, the host evolves defenses against the parasite, often reducing the harm done by the parasite to a level the host can tolerate. **Paragraph 3** Parasites that live on the surface of their hosts are known as **ectoparasites**. Fleas, lice, and some molds and mildews are examples of ectoparasites. Many other parasites, such as tapeworms, malaria parasites, many kinds of bacteria, and some fungi, are called **endoparasites** because they live inside the bodies of their hosts. A tapeworm lives in the intestines of its host where it is able to resist being digested and makes use of the nutrients in the intestine.  Even plants can be parasites. Mistletoe is a flowering plant that is parasitic on trees. It establishes itself on the surface of a tree when a bird transfers the seed to the tree. It then grows down into the water-conducting tissues of the tree and uses the water and minerals it obtains from these tissues to support its own growth.  **Commensalism** is a relationship between organisms in which one organism benefits while the other is not affected. It is possible to visualize a parasitic relationship evolving into a commensal one. Since parasites generally evolve to do as little harm to their host as possible and the host is combating the negative effects of the parasite, they might eventually evolve to the point where the host is not harmed at all.  Many examples of commensal relationships exist. Many orchids use trees as a surface upon which to grow. The tree is not harmed or helped, but the orchid needs a surface upon which to establish itself and also benefits by being close to the top of the tree, where it can get more sunlight and rain. Some mosses, ferns, and many vines also make use of the surfaces of trees in this way. In the ocean, many sharks have a smaller fish known as a remora attached to them. Remoras have a sucker on the top of their heads that they can use to attach to the shark. In this way, they can hitchhike a ride as the shark swims along. When the shark feeds, the remora frees itself and obtains small bits of food that the shark misses. Then, the remora reattaches. The shark does not appear to be positively or negatively affected by remoras.  **Paragraph 8 Mutualism** is another kind of symbiotic relationship and is actually beneficial to both species involved. In many mutualistic relationships, the relationship is obligatory; the species cannot live without each other. In others, the species can exist separately but are more successful when they are involved in a mutualistic relationship. Some species of Acacia, a thorny tree, provide food in the form of sugar solutions in little structures on their stems. Certain species of ants feed on the solutions and live in the tree, which they will protect from other animals by attacking any animal that begins to feed on the tree. Both organisms benefit; the ants receive food and a place to live, and the tree is protected from animals that would use it as food.  **Paragraph 9** One soil nutrient that is usually a limiting factor for plant growth is nitrogen. Many kinds of plants, such as legumes, beans, clover, Acacia trees, and Alder trees, have bacteria that live in their roots in little nodules. The roots form these nodules when they are infected with certain kinds of bacteria. The bacteria do not cause disease but provide the plants with nitrogen-containing molecules that the plants can use for growth. The nitrogen-fixing bacteria benefit from the living site and nutrients that the plants provide, and the plants benefit from the nitrogen they receive. |

1. The word categories in the passage is closest in meaning to

* A sources
* B ideas
* C classifications
* D problems

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

* A comparatively
* B routinely
* C adversely
* D frequently

3. Which of the sentences below best expresses the information in the highlighted statement in the passage? The other choices change the meaning or leave out important information.

* A A parasite is less likely to destroy the host when it attaches itself at first.
* B Parasites that have lived on a host for a long time have probably done a lot of damage.
* C The most destructive phase for a host is when the parasite first invades it.
* D The relationship between a parasite and a host will evolve over time.

4. The word tolerate in the passage is closest in meaning to

* A permit
* B oppose
* C profit
* D avoid

5. According to paragraph 3, how do ectoparasites survive?

* A They live in mold and mildew on their hosts.
* B They digest food in the intestines of their hosts.
* C They live on the nutrients in their bacterial hosts.
* D They inhabit the outside parts of their hosts.

6. Which of the following is mentioned as an example of a commensal relationship?

* A Orchids
* B Mistletoe
* C Ants
* D Fungus

7. In paragraph 8, why does the author use the example of the Acacia tree?

* A To demonstrate how ants survive by living in trees
* B To explain how two species can benefit from contact
* C To show the relationship between plants and animals
* D To present a problem that occurs often in nature

8.According to paragraph 9, how does bacteria affect beans and clover?

* A It causes many of the plants to die.
* B It limits the growth of young plants.
* C It supplies nitrogen to the crops.
* D It infects the roots with harmful nodules.

9. In which of the following chapters would this passage most probably appear?

* A Environment and Organisms
* B Pollution and Policies
* C Human Influences on Ecosystems
* D Energy Resources

10. An introduction for a short summary of the passage appears below. Complete the summary by selecting the THREE answer choices that mention the most important points in the passage. Some sentences do not belong in the summary because they express ideas that are not included in the passage or are minor points from the passage. ***This question is worth 2 points.***

**Symbiosis is a close, continuing physical relationship between two species.**

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| A Parasitic species will feed on the host species, causing varying degrees of damage to the host as a result of the relationship.  B Orchids benefit from being near the top of a tree where they can be exposed to more sunlight and rain.  C Nodules in the roots of the plants supply nitrogen from bacteria, thereby enriching the soil.  D In commensalism, one species will benefit from the relationship, but the other species is not affected by it.  E Certain species form mutualistic relationships in which both species benefit from the physical contact.  F Evolutionary changes in species may allow them to live in close physical contact with little damage to each other. |

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| **Passage**  The following reading passage was adapted from *Western Civilization,* Seventh Edition by Jackson J. Spielvogel, Wadsworth, 2009.  **Civilization**  Between 4000 and 3000 B.C., significant technological developments began to transform the Neolithic towns. The invention of writing enabled records to be kept, and the use of metals marked a new level of human control over the environment and its resources. Already before 4000 B.C., craftspeople had discovered that metal-bearing rocks could be heated to liquefy metals, which could then be cast in molds to produce tools and weapons that were more useful than stone instruments. Although copper was the first metal to be utilized in producing tools, after 4000 B.C. craftspeople in western Asia discovered that a combination of copper and tin produced bronze, a much harder and more durable metal than copper. Its widespread use has led historians to call the period the Bronze Age; thereafter, from around 3000 to 1200 B.C., bronze was increasingly replaced by iron. **Paragraph 2** At first, Neolithic settlements were hardly more than villages. But as their inhabitants mastered the art of farming, more complex human societies emerged. As wealth increased, these societies began to develop armies and to build walled cities. By the beginning of the Bronze Age, the concentration of larger numbers of people in the river valleys of Southwest Asia and Egypt was leading to a whole new pattern for human life. **Paragraph 3** As we have seen, early human beings formed small groups that developed a simple culture that enabled them to survive. As human societies grew and developed greater complexity, a new form of human existence—called civilization— came into being. A civilization is a complex culture in which large numbers of human beings share a number of common elements. Historians have identified a number of basic characteristics of civilization, most of which are evident in the Southwest Asian and Egyptian civilizations. These include (1) an urban focus: cities became the centers of political, economic, social, cultural, and religious development; (2) a distinct religious structure: the gods were deemed crucial to the community’s success, and professional priestly classes, as stewards of the gods’ property, regulated relations with the gods; (3) new political and military structures: an organized government bureaucracy arose to meet the administrative demands of the growing population while armies were organized to gain land and power and for defense; (4) a new social structure based on economic power: while kings and an upper class of priests, political leaders, and warriors dominated, there also existed large groups of free people (farmers, artisans, craftspeople) and at the very bottom, socially, a class of slaves; (5) the development of writing: kings, priests, merchants, and artisans used writing to keep records; and (6) new forms of significant artistic and intellectual activity: monumental architectural structures, usually religious, occupied a prominent place in urban environments. Why early civilizations developed remains difficult to explain. ​ Since civilizations developed independently in India, China, Mesopotamia, and Egypt, can general causes be identified that would explain why all of these civilizations emerged? ​ A number of possible explanations of the beginning of civilization have been suggested. A theory of challenge and response maintains that challenges forced human beings to make efforts that resulted in the rise of civilization. Some scholars have adhered to a material explanation. ​ Material forces, such as the growth of food surpluses, made possible the specialization of labor and development of large communities with bureaucratic organization. ​ But the area of the Fertile Crescent, in which civilization emerged in Southwest Asia, was not naturally conducive to agriculture. Abundant food could be produced only with a massive human effort to carefully manage the water, an effort that created the need for organization and bureaucratic control and led to civilized cities. Some historians have argued that nonmaterial forces, primarily religious, provided the sense of unity and purpose that made such organized activities possible. Finally, some scholars doubt that we are capable of ever discovering the actual causes of early civilization. |

11. The word hardly in the passage is closest in meaning to

* A frequently
* B likely
* C barely
* D obviously

12. Why does the author mention “Neolithic settlements” in paragraph 2?

* A To give an example of a civilization
* B To explain the invention of writing systems
* C To argue that they should be classified as villages
* D To contrast them with the civilizations that evolved

13. Which of the following is the best definition of a “civilization?”

* A Neolithic towns and cities
* B Types of complex cultures
* C An agricultural community
* D Large population centers

14. Which of the sentences below best expresses the information in the highlighted statement in the passage? The other choices change the meaning or leave out important information.

* A Southwest Asian and Egyptian civilizations exhibit the majority of the characteristics identified by historians.
* B The characteristics that historians have identified are not found in the Egyptian and Southwest Asian cultures.
* C Civilizations in Southwest Asia and Egypt were identified by historians who were studying the characteristics of early cultures.
* D The identification of most historical civilizations includes either Egypt or Southwest Asia on the list.

15. The word crucial in the passage is closest in meaning to

* A fundamental
* B arbitrary
* C disruptive
* D suitable

16. According to paragraph 3, how was the class system structured?

* A An upper class and a lower class
* B Slaves, free people, and a ruling class
* C A king, an army, and slaves
* D Intellectuals and uneducated farmers and workers

17. The word prominent in the passage is closest in meaning to

* A weak
* B important
* C small
* D new

18. Look at the four squares [□] that show where the following sentence could be inserted in the passage.

Some historians believe they can be established.

Where could the sentence best be added?

Why early civilizations developed remains difficult to explain. □Since civilizations developed independently in India, China, Mesopotamia, and Egypt, can general causes be identified that would explain why all of these civilizations emerged? ​□A number of possible explanations of the beginning of civilization have been suggested. A theory of challenge and response maintains that challenges forced human beings to make efforts that resulted in the rise of civilization. Some scholars have adhered to a material explanation. ​ □Material forces, such as the growth of food surpluses, made possible the specialization of labor and development of large communities with bureaucratic organization. ​□But the area of the Fertile Crescent, in which civilization emerged in Southwest Asia, was not naturally conducive to agriculture. Abundant food could be produced only with a massive human effort to carefully manage the water, an effort that created the need for organization and bureaucratic control and led to civilized cities. Some historians have argued that nonmaterial forces, primarily religious, provided the sense of unity and purpose that made such organized activities possible. Finally, some scholars doubt that we are capable of ever discovering the actual causes of early civilization.

19. All of the following are cited as reasons why civilizations developed EXCEPT

* A Religious practices unified the population.
* B The management of water required organization.
* C A major climate change made living in groups necessary.
* D Extra food resulted in the expansion of population centers.

20. An introduction for a short summary of the passage appears below. Complete the summary by selecting the THREE answer choices that mention the most important points in the passage. Some sentences do not belong in the summary because they express ideas that are not included in the passage or they are minor points from the passage. ***This question is worth 2 points.***   
  
**Certain qualities appear to define a civilization.**

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| A Free citizens who work in professions for pay  B Bureaucracies for the government and armies  C Libraries to house art and written records  D A strategic location near rivers or the sea  E Organized religion, writing, and art  F A densely populated group with a class structure |

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| **Passage**  The following reading passage was adapted from *Horizons,* Eleventh Edition by Michael A. Seeds, Brooks-Cole, 2010.  **Life in Our Solar System**  Although we can imagine life based on something other than carbon chemistry, we know of no examples to tell us how such life might arise and survive. We must limit our discussion to life as we know it and the conditions it requires. The most important requirement is the presence of liquid water, not only as part of the chemical reactions of life, but also as a medium to transport nutrients and wastes within the organism. The water requirement automatically eliminates many worlds in our solar system. The moon is airless, and although some data suggest ice frozen in the soil at its poles, it has never had liquid water on its surface. In the vacuum of the lunar surface, liquid water would boil away rapidly. Mercury too is airless and cannot have had liquid water on its surface for long periods of time. Venus has some traces of water vapor in its atmosphere, but it is much too hot for liquid water to survive. If there were any lakes or oceans of water on its surface when it was young, they must have evaporated quickly. Even if life began there, no traces would be left now. The inner solar system seems too hot, and the outer solar system seems too cold. The Jovian planets have deep atmospheres, and at a certain level, they have moderate temperatures where water might condense into liquid droplets. But it seems unlikely that life could begin there. The Jovian planets have no surfaces where oceans could nurture the beginning of life, and currents in the atmosphere seem destined to circulate gas and water droplets from regions of moderate temperature to other levels that are much too hot or too cold for life to survive. A few of the satellites of the Jovian planets might have suitable conditions for life. Jupiter’s moon Europa seems to have a liquid-water ocean below its icy crust, and minerals dissolved in that water would provide a rich broth of possibilities for chemical evolution. Nevertheless, Europa is not a promising site to search for life because conditions may not have remained stable for the billions of years needed for life to evolve beyond the microscopic stage. If Jupiter’s moons interact gravitationally and modify their orbits, Europa may have been frozen solid at some points in history.  **Paragraph 5** Saturn’s moon Titan has an atmosphere of nitrogen, argon, and methane and may have oceans of liquid methane and ethane on its surface. The chemistry of life that might crawl or swim on such a world is unknown, but life there may be unlikely because of the temperature. The surface of Titan is a deadly –179°C (–290°F). Chemical reactions occur slowly or not at all at such low temperatures, so the chemical evolution needed to begin life may never have occurred on Titan. Mars is the most likely place for life in our solar system. The evidence, however, is not encouraging. Meteorite ALH84001 was found on the Antarctic ice in 1984. It was probably part of debris ejected into space by a large impact on Mars. ALH84001 is important because a team of scientists studied it and announced in 1996 that it contained chemical and physical traces of ancient life on Mars. Scientists were excited too, but being professionally skeptical, they began testing the results immediately. In many cases, the results did not confirm the conclusion that life once existed on Mars. Some chemical contamination from water on Earth has occurred, and some chemicals in the meteorite may have originated without the presence of life. The physical features that look like fossil bacteria may be mineral formations in the rock. Spacecraft now visiting Mars may help us understand the past history of water there and paint a more detailed picture of present conditions. Nevertheless, conclusive evidence may have to wait until a geologist in a space suit can wander the dry streambeds of Mars cracking open rocks and searching for fossils. We are left to conclude that, so far as we know, our solar system is bare of life except for Earth. Consequently, our search for life in the universe takes us to other planetary systems. |

21. The word data in the passage is closest in meaning to

* A improvements
* B agreements
* C facts
* D methods

22. Which of the following statements about the water on Venus is true?

* A The water evaporated because of the high temperatures.
* B The water became frozen in the polar regions.
* C Only a little water is left in small lakes on the surface.
* D Rain does not fall because there is no atmosphere.

23. What can be inferred from the passage about the Jovian planets?

* A Some of the Jovian planets may have conditions that could support life.
* B Jupiter is classified as one of the Jovian planets.
* C Europa is the largest of the moons that revolve around Jupiter.
* D The orbits of the Jovian planets have changed over time.

24. The word stable in the passage is closest in meaning to

* A visible
* B active
* C constant
* D strong

25. Look at the four squares [□] that show where the following sentence could be inserted in the passage.  
  
**Such periods of freezing would probably prevent life from developing.**  
  
Where could the sentence best be added?

A few of the satellites of the Jovian planets might have suitable conditions for life. Jupiter’s moon Europa seems to have a liquid-water ocean below its icy crust, and minerals dissolved in that water would provide a rich broth of possibilities for chemical evolution. □Nevertheless, Europa is not a promising site to search for life because conditions may not have remained stable for the billions of years needed for life to evolve beyond the microscopic stage. □If Jupiter’s moons interact gravitationally and modify their orbits, Europa may have been frozen solid at some points in history. □  
Saturn’s moon Titan has an atmosphere of nitrogen, argon, and methane and may have oceans of liquid methane and ethane on its surface. □The chemistry of life that might crawl or swim on such a world is unknown, but life there may be unlikely because of the temperature. The surface of Titan is a deadly –179°C (–290°F). Chemical reactions occur slowly or not at all at such low temperatures, so the chemical evolution needed to begin life may never have occurred on Titan.

26. According to paragraph 5, why would life on Titan be improbable?

* A It does not have an ocean.
* B It is not a planet.
* C It is too cold.
* D It has a low atmosphere.

27. Which of the sentences below best expresses the information in the highlighted statement in the passage? The other choices change the meaning or leave out important information.

* A Life on Mars was found as a result of research in many cases.
* B The evidence did not demonstrate that there was life on Mars in the past.
* C Many cases of life were concluded in the history of Mars.
* D The conclusion was that only one instance of life on Mars was verified.

28. The word originated in the passage is closest in meaning to

* A turned
* B changed
* C begun
* D disappeared

29. How will scientists confirm the existence of life on Mars?

* A By sending unmanned spacecraft to Mars
* B By looking at fossils on Mars
* C By viewing pictures taken of Mars
* D By studying the present conditions on Mars

30. An introduction for a short summary of the passage appears below. Complete the summary by selecting the THREE answer choices that mention the most important points in the passage. Some sentences do not belong in the summary because they express ideas that are not included in the passage or are minor points from the passage. ***This question is worth 2 points.***   
  
**Current evidence does not support the theory of life in our solar system.**

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| A The meteorite that was discovered in the Antarctic in the 1980s was thought to contain evidence of early life on Mars, but it was later disputed.  B The planet that has the greatest probability for life in the past or now is Mars, but more investigation is required to draw conclusions.  C Europa has an ocean under the ice on the surface of the moon, which may contain the chemical combinations required for life to evolve.  D Although some of the moons that revolve around Saturn and Jupiter have conditions that might support life, the evidence contradicts this possibility.  E Other planetary systems must have life that is similar to that which has evolved on Earth because of the principles of carbon chemistry.  F It is too hot for life on the planets near the Sun in the inner solar system and too cold on the planets most removed from the Sun in the outer solar system. |

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