Bio12-Q1W2-Qs.Bank

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. An organism is affected by interactions with which of the following?
a. Other organisms of the same species
b. Other organisms of different species
c. The natural environment
d. All of the above

____ 2. A group of organisms that can interbreed and produce fertile offspring is called a(n) ____.
a. family.
b. species.
c. organization.
d. community.

____ 3. Inside the human body, heat is constantly generated as a byproduct of chemical reactions. Humans must be able to release heat to the environment. This adaptation is necessary for maintaining ____.
a. energy.
b. organization.
c. homeostasis.
d. locomotion.

____ 4. Sugar dissolves in, or mixes completely with, water. The solubility of a substance in water is determined by measuring the maximum amount of the substance that dissolves in a given amount of water at a given temperature. Hypothesis: The solubility of sugar in water increases as the temperature of the water decreases. Identify the independent variable and the dependent variable that you would use to test this hypothesis.
a. Dependent variable—volume of water; independent variable—water temperature
b. Dependent variable—water temperature; independent variable—amount of sugar that dissolves
c. Dependent variable—amount of sugar that dissolves; independent variable—water temperature
d. Dependent variable—amount of sugar that dissolves; independent variable—mineral content of the water

____ 5. Which of the following tools would you need to carry out the experiment in question 4?
a. Thermometer
b. Metric balance
c. Graduated cylinder
d. All of the above

____ 6. A scientist performs a series of experiments to confirm an idea regarding cellular metabolism. The results of her experiments support her initial idea, and after conferring with colleagues, she discovers that evidence from many experiments has supported the same idea. This idea now can be considered a(n) ____.
a. theory.
b. hypothesis.
c. observation.
d. control.

____ 7. Which of the following procedures is considered a scientific method?
a. Collecting data
b. Making a hypothesis
c. Observing
d. All of the above

____ 8. To simplify the results of an experiment, many researchers hold all variables constant except for one. They then compare the results with respect to that one variable. This type of experiment is known as a ____.
a. variable experiment.
b. multi-factor experiment.
c. controlled experiment.
d. None of the above

____ 9. Which of the following units is part of the International System of Measurement (SI)?
a. Pound
b. Inch
c. Meter
d. Gallon

____ 10. A scientist uses graphs, tables, and charts to publish the results of his research. What type of research was he probably performing?
a. Descriptive research
b. Quantitative research
c. Qualitative research
d. None of the above

____ 11. Ecology is the study of relationships among —
a. living things only.
b. living and nonliving things.
c. nonliving things only.
d. None of the above

____ 12. The portion of Earth that supports the existence of living things is called the —
a. ecosystem.
b. habitat.
c. biosphere.
d. niche.

____ 13. Which of the following is a biotic factor that might affect the life of a water-dwelling organism?
a. Temperature of the water
b. Speed of water current
c. Pollutants in water
d. Bacterial population in water

____ 14. Which level of organization encompasses all of the others?
a. Ecosystem
b. Community
c. Population
d. Division

____ 15. Which of the following has NOT been described as a major kind of ecosystem?
a. Terrestrial
b. Aerial
c. Freshwater
d. Marine

____ 16. Which of the following is NOT consumed by fungal decomposers?
a. First-order heterotrophs
b. Third-order heterotrophs
c. Producers
d. None of the above

____ 17. Which ecological pyramid best explains why food chains are typically only three or four links long?
a. Pyramid of biomass
b. Pyramid of energy
c. Pyramid of numbers
d. None of the above

____ 18. Which of the following things does NOT allow plants to obtain atmospheric nitrogen in a more usable form?
a. Photosynthesis
b. Lightning
c. Symbiotic bacteria
d. Chemical fertilizers

____ 19. Water is lost to the abiotic parts of the biosphere from the biotic parts by the process of _____.
a. precipitation
b. photosynthesis
c. transpiration
d. infiltration

____ 20. Nitrogen is released to the abiotic parts of the biosphere from the processes of death and _____.
a. decay by bacteria
b. infiltration of groundwater
c. runoff
d. lightning in storm clouds

____ 21. Some birds are known as honey guides because they may be followed by humans to wild beehives. When the humans take honey from the hives, the birds are able to feast on the honey and bees, too. This type of relationship can <u>best</u> be described as _____.
a. parasitism
b. commensalism
c. mutualism
d. symbiosis

____ 22. Sea stars live in saltwater ecosystems. Some species live in shallow tidal pools, while others live in the deepest parts of the oceans. This is a description of the _____ of sea stars.
a. habitat
b. community
c. niche
d. none of these

____ 23. Cougars are predators that often eat weakened or diseased animals. This is a description of the _____ of cougars.
a. habitat
b. community
c. niche
d. none of these

____ 24. An ecologist who studies how several species in an area interact among each other and with the abiotic parts of the environment is interested in the biological organization level called a(n) _____.
a. organism
b. population
c. community
d. ecosystem

____ 25. An ecologist who studies how several species in an area interact is interested in the biological organization called a(n) _____.

a. organism
b. population
c. community
d. ecosystem

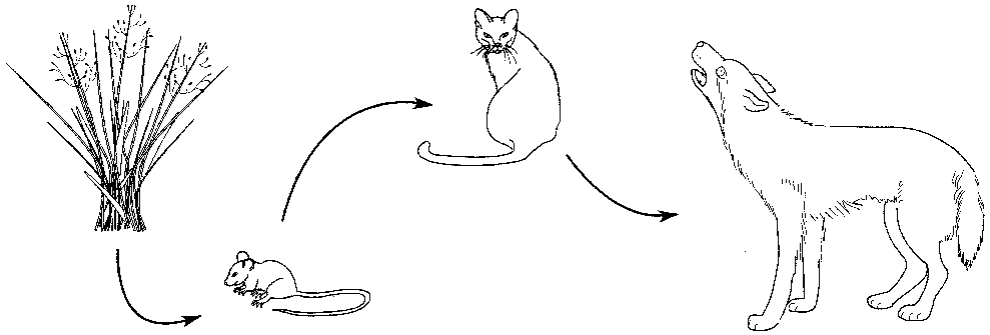

Figure 2-1

____ 26. Referring to Figure 2-1, suppose 10 000 units of energy are available at the level of the grasses. What is the total number of energy units lost by the time energy reaches the coyote?

a. 90 units
b. 990 units
c. 9900 units
d. 9990 units

____ 27. Referring to Figure 2-1, as matter and energy move from grasses to coyotes, the amount of available energy _____.

a. increases
b. decreases
c. decreases then increases
d. increases or decreases but population size remains the same

____ 28. Referring to Figure 2-1, the coyotes would be considered _____.

a. herbivores
b. third-order consumers
c. second-order consumers
d. decomposers

____ 29. Referring to Figure 2-1, energy flows from _____.

a. coyotes to grasses
b. cats to mice
c. mice to cats
d. coyotes to cats

____ 30. Where is the biosphere in Figure 2-4?

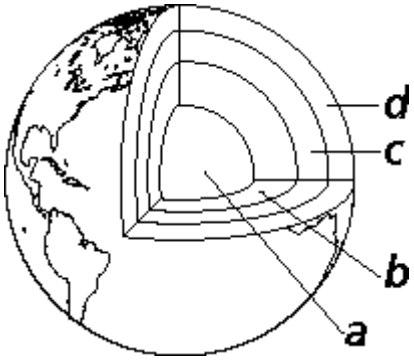

Figure 2-4

a. core
b. mantle
c. upper mantle
d. earth's crust

____ 31. In the energy pyramid shown in Figure 2-7, which level has the smallest number of organisms?

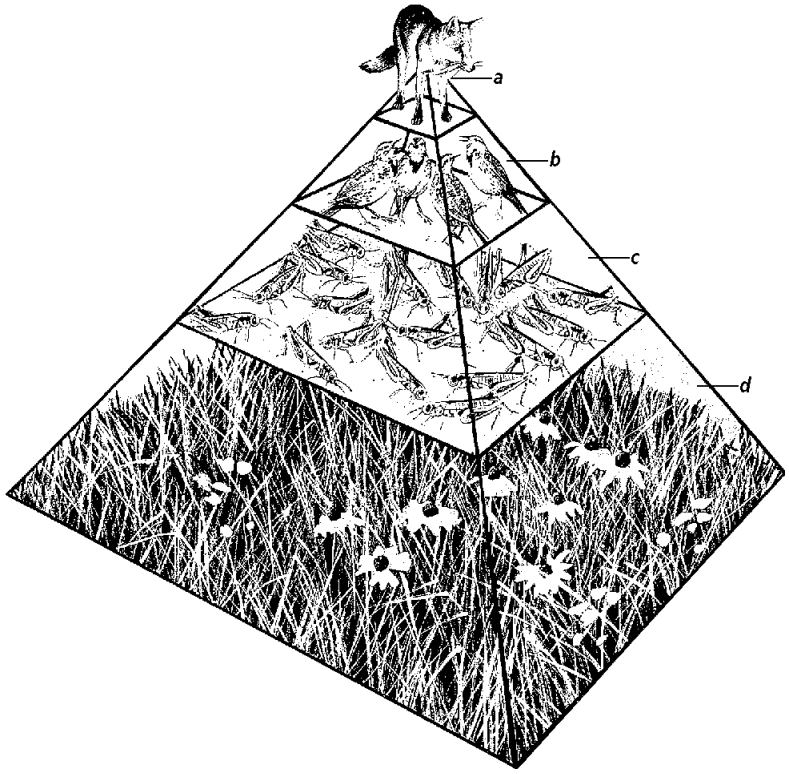

Figure 2-7

a. fox
b. birds
c. grasshoppers
d. grass

____ 32. The organisms growing on the log in Figure 2-8 are ____?

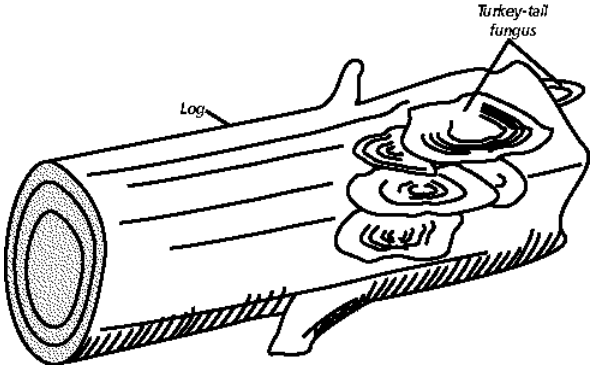

Figure 2-8

a. producers
b. autotrophs
c. carnivores
d. decomposers

____ 33. Which organism shown in the pyramid shown in Figure 2-9 receives the highest percentage of energy from the sun?

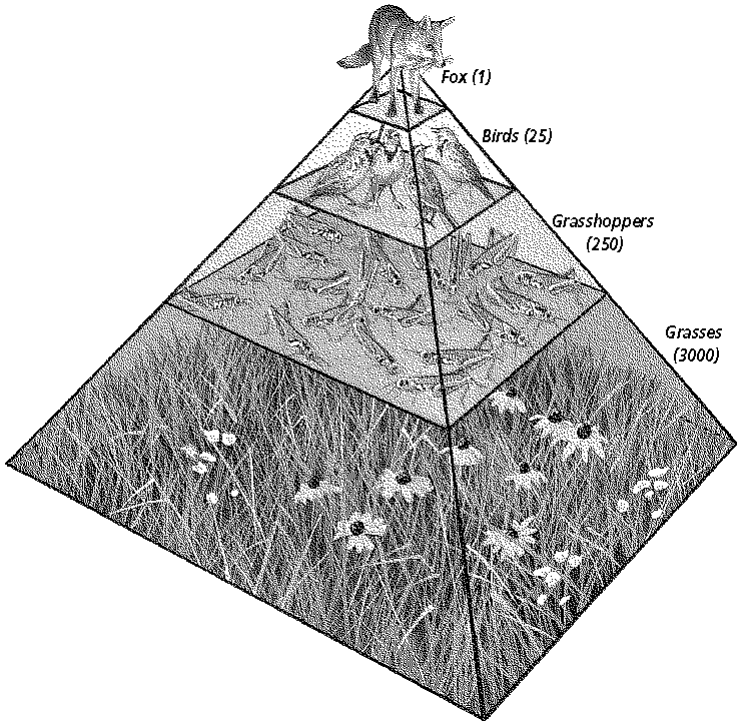

Figure 2-9

a. fox
b. birds
c. grasshoppers
d. grass

____ 34. What type of cycle is depicted in Figure 2-10?

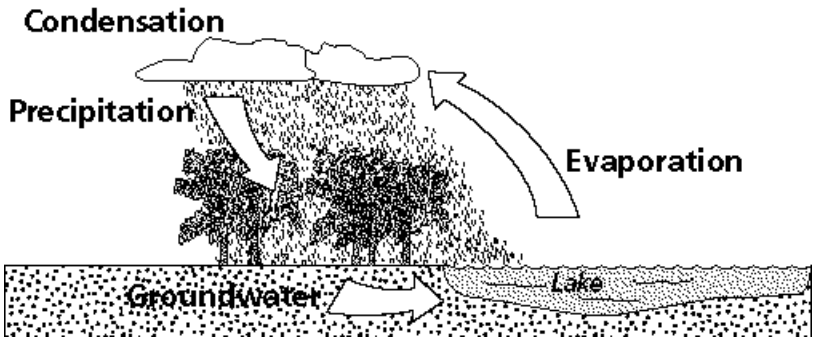

Figure 2-10

a. carbon
b. water
c. phosphorus
d. nitrogen

____ 35. What type of ecosystem is shown in Figure 2-11?

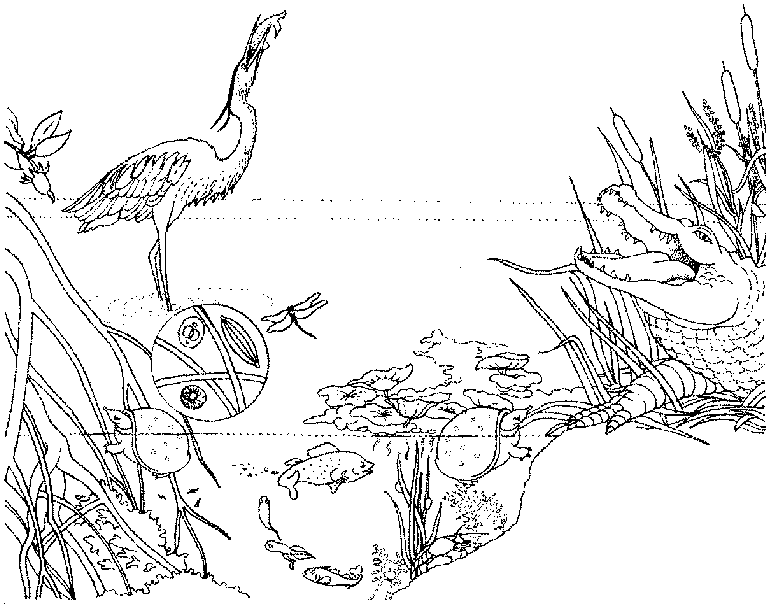

Figure 2-11

a. terrestrial
b. population
c. acquatic
d. abiotic

____ 36. Which of the following might be a limiting factor in an organism's survival?
a. Temperature
b. Food availability
c. Abundance of predators
d. All of the above

____ 37. Certain bacteria are able to thrive in extremely acidic environments where most organisms could not survive. This is an example of different organisms having different —
a. tolerances.
b. biotic factors.
c. abiotic factors.
d. None of the above

____ 38. After a community is disrupted by large-scale events, such as forest fires, a new community is established through the process of —
a. primary succession.
b. secondary succession.
c. soil formation.
d. None of the above

____ 39. Within aquatic biomes, there are many different environments where different types of organisms thrive. In general, aquatic biomes are divided into photic and aphotic zones. Which of the following determines whether a zone is photic or aphotic?
a. Distance from land
b. Distance from equator
c. Water depth
d. All of the above

____ 40. Small organisms that live in the photic zone of aquatic biomes are —
a. plankton.
b. eubacteria.
c. autotrophic.
d. heterotrophic.

____ 41. An uncut lawn becomes a meadow and eventually a forest. This process is an example of _____.
a. aphotic zones
b. primary succession
c. estuary
d. secondary succession

____ 42. A girl notices that her guppies reproduce most when her fish tank water is slightly alkaline. They stop reproducing if the water becomes acidic or if the water becomes too alkaline. This is an example of _____.
a. secondary succession
b. zones of tolerance and intolerance
c. communities
d. intertidal zones

Ling feeds her guppies one-half teaspoon of fish food every day. The average guppy population in her aquarium over a four-month period is 38 guppies. She increased the food to one teaspoon per day. After a four-month period, the average population is 53 guppies.

____ 43. Which of the following statements is supported by these data?
a. The size of the aquarium was a limiting factor.
b. One-half teaspoon of food was a limiting factor.
c. As long as Ling keeps adding more food, the guppy population will continue to grow.
d. Guppies reproduce rapidly.

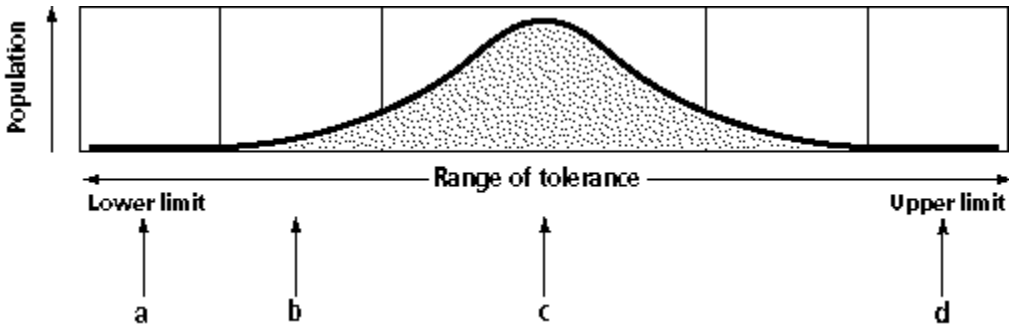

Figure 3-3

____ 44. In Figure 3-3, where will you be most likely to find the greatest diversity?
a. A
b. B
c. C
d. D

____ 45. In Figure 3-3, which section would account for a lower number of organisms near the bottom of a pond due to a short supply of oxygen and sunlight?
a. A
b. B
c. C
d. D

____ 46. What type of succession is most likely to happen in Figure 3-4?

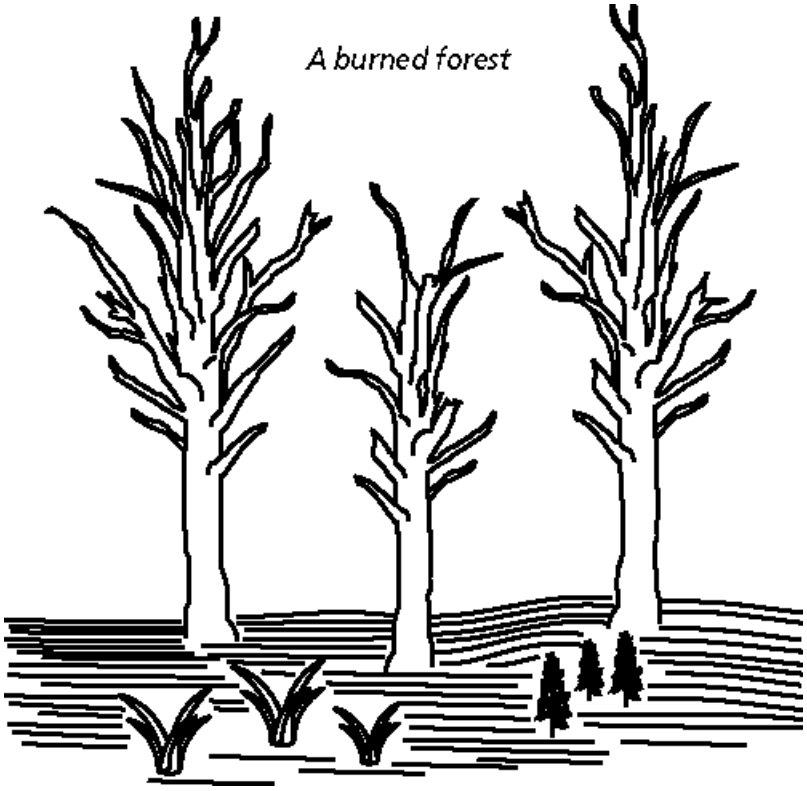

Figure 3-4

a. primary
b. secondary
c. teriary
d. climax

____ 47. If you released a new species of deer into each of the stages shown in Figure 3-5, in which stage would the species be most successful?

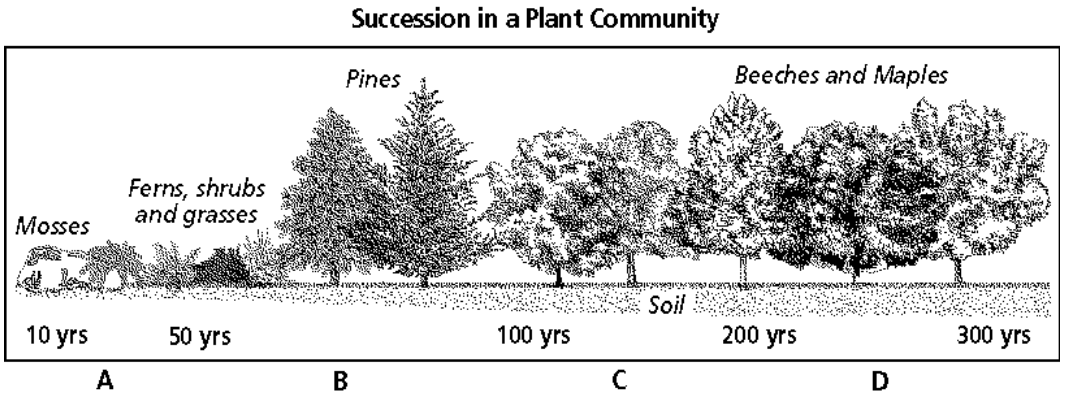

Figure 3-5

a. A
b. B
c. C
d. D

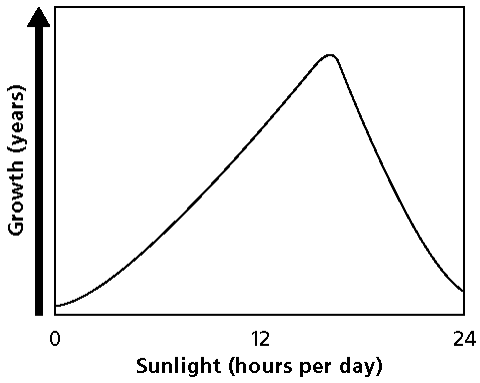

Figure 3-6

____ 48. What would be the best time of the year to plant the organism described in Figure 3-6?
a. winter
b. spring
c. summer
d. fall

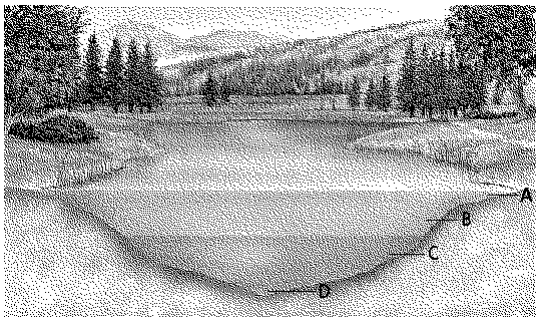

Figure 3-7

____ 49. You take a sample of species from the area labeled A in Figure 3-7. What would you expect to find?
a. almost no life
b. great species diversity
c. organisms that need very little oxygen
d. one dominant species of fish

____ 50. What type of species would be most likely found in the area labeled D in Figure 3-7?
a. one that requires plenty of oxygen
b. plants that require light
c. amphibians that need a warm habitat
d. decomposers that feed on dead organisms

Modified True/False
Indicate whether the statement is true or false. If false, change the identified word or phrase to make the statement true.

____ 51. Herd animals are usually concentrated in the <u>forest biome</u>. _____

____ 52. The great northern coniferous forests are part of the <u>tundra biome</u>. _____

____ 53. <u>Light intensity</u> is a major limiting factor of the tundra biome. _____

____ 54. Phytoplankton, which obtain energy by photosynthesis, are usually found concentrated in the <u>photic</u> zone of the ocean. _____

____ 55. A <u>pioneer community</u> is usually the stable result of succession. _____

____ 56. <u>Optimal</u> factors restrict the numbers of organisms that can exist. _____

____ 57. Age, physical condition, and stage in its life cycle may all influence an organism's limits of tolerance.
_____

____ 58. The range of factors under which an organism functions and survives is known as a limiting factor.
_____

____ 59. The tundra is a region dominated by deciduous trees. _____

____ 60. A large group of ecosystems characterized by the same type of climax community is called a taiga.
_____

____ 61. The colonization of new sites by communities of organisms is secondary succession.
_____

____ 62. A pioneer community is a stable, mature community that undergoes little or no succession.
_____

____ 63. Conditions that restrict the existence, population size, reproductive success, or distribution of organisms are called ranges of tolerance. _____

____ 64. The portion of the shoreline that is affected by high and low tides is the aphotic zone.
_____

____ 65. The region of the ocean shallow enough for sunlight to penetrate is the photic zone.
_____

____ 66. Succession is the replacement of one community by another as environmental conditions change.
_____

____ 67. A body of water near the coast that is partly surrounded by land and contains both fresh and salt water is known as the intertidal zone. _____

____ 68. Humus is a layer of soil that remains frozen throughout the year. _____

____ 69. Microscopic organisms that float in the sunlit regions of the ocean are pioneer species.
_____

____ 70. The tundra is an arid region characterized by little or no plant life. _____

Matching

Match each item with the correct statement below.

a. mutualism
b. biosphere
c. ecology
d. biological community
e. decomposer
f. parasitism
g. habitat
h. food web
i. food chain
j. commensalism
k. scavenger
l. heterotroph
m. trophic level
n. autotroph

____ 71. relationship between organisms in which both organisms benefit
____ 72. network of interconnected food chains
____ 73. relationship between organisms in which one organism benefits and the other is neither harmed nor benefited
____ 74. layer of Earth that supports life
____ 75. feeds on dead organisms

____ 76. group formed by several populations
____ 77. relationship between organisms in which one organism benefits at the expense of another
____ 78. step in the passage of energy and matter through an ecosystem
____ 79. obtains energy and nutrients from autotrophs
____ 80. breaks down dead organisms

Bio12-Q1W1-Qs.Bank
Answer Section

MULTIPLE CHOICE

1. ANS: D
   Organisms depend upon other living things as well as nonliving things in the environment.

   PTS: 1
2. ANS: B
   A species is a group of organisms that can reproduce to create fertile offspring.

   PTS: 1
3. ANS: C
   Homeostasis is the regulation of an organism's internal environment to preserve conditions conducive to life. Temperature regulation is one form of homeostasis in human beings.

   PTS: 1
4. ANS: C
   The dependent variable is the amount of sugar that dissolves, and the independent variable is water temperature. As you lower the temperature of the water, more sugar should dissolve in the water.

   PTS: 1
5. ANS: D
   You would need a thermometer to measure water temperature, a balance to mass the sugar, and a graduated cylinder to measure the water volume.

   PTS: 1
6. ANS: A
   A theory is a hypothesis that has been supported by extensive scientific research and evidence.

   PTS: 1
7. ANS: D
   Scientific methods involve observing, developing hypotheses, collecting data, publishing results, and forming theories.

   PTS: 1
8. ANS: C
   A controlled experiment is one in which a group in which all conditions remain the same is compared to a group in which one variable has been changed. By comparing a controlled group and an experimental, or changed, group, the effect of a changed variable can be determined.

   PTS: 1
9. ANS: C
   The SI is a decimal system consisting of meters, grams, liters. seconds, and degrees Celsius.

   PTS: 1
10. ANS: B

Quantitative research results in numerical data that can be displayed easily as charts, graphs, and tables.

PTS: 1

11. ANS: B
Ecology is defined as the study of interactions among organisms and their environments.

PTS: 1

12. ANS: C
The biosphere spans the region between the upper atmosphere and the bottom of the ocean. Within this region, living things can exist; outside the biosphere, conditions are not conducive to life.

PTS: 1

13. ANS: D
Biotic factors include all the living organisms that inhabit an environment. Bacteria are living organisms and are considered biotic factors.

PTS: 1

14. ANS: A
The highest level of organization within the biosphere is the ecosystem. An ecosystem consists of the interactions between a community and its abiotic surroundings.

PTS: 1

15. ANS: B
Three major types of ecosystems are terrestrial, freshwater, and salt water or marine.

PTS: 1

16. ANS: D
Bacteria and fungi are capable of decomposing all organisms after they die. Therefore, all trophic levels of organisms are consumed by decomposers.

PTS: 1

17. ANS: B
Pyramids of energy illustrate that the energy contained in each trophic level decreases as trophic level increases. After three or four links, little energy remains in the pyramid.

PTS: 1

18. ANS: A
Nitrogen is converted to more usable forms by lightning and by bacteria. In addition, chemical fertilizers are composed of usable nitrogen.

PTS: 1

19. ANS: C PTS: 1 DIF: B OBJ: 2-6
NAT: C4 | C5 | C6

20. ANS: A PTS: 1 DIF: B OBJ: 2-6
NAT: C4 | C5 | C6

21. ANS: C PTS: 1 DIF: B OBJ: 2-2
NAT: C4 | C5 | C6

22. ANS: A PTS: 1 DIF: B OBJ: 2-3
NAT: C4 | C5 | C6

23. ANS: C PTS: 1 DIF: B OBJ: 2-3

NAT: C4 | C5 | C6

24. ANS: D PTS: 1 DIF: B OBJ: 2-2
NAT: C4 | C5 | C6

25. ANS: C PTS: 1 DIF: B OBJ: 2-2
NAT: C4 | C5 | C6

26. ANS: D PTS: 1 DIF: B OBJ: 2-5
NAT: C4 | C5 | C6

27. ANS: B PTS: 1 DIF: B OBJ: 2-5
NAT: C4 | C5 | C6

28. ANS: B PTS: 1 DIF: B OBJ: 2-4
NAT: C4 | C5 | C6

29. ANS: C PTS: 1 DIF: B OBJ: 2-5
NAT: C4 | C5 | C6

30. ANS: D PTS: 1 DIF: B OBJ: 2-1
NAT: C4 | C5 | C6

31. ANS: A PTS: 1 DIF: B OBJ: 2-5
NAT: C4 | C5 | C6

32. ANS: D PTS: 1 DIF: A OBJ: 2-5
NAT: C4 | C5 | C6

33. ANS: D PTS: 1 DIF: A OBJ: 2-5
NAT: C4 | C5 | C6

34. ANS: B PTS: 1 DIF: B OBJ: 2-6
NAT: C4 | C5 | C6

35. ANS: C PTS: 1 DIF: B OBJ: 2-1
NAT: C4 | C5 | C6

36. ANS: D
A limiting factor is anything, biotic or abiotic, that restricts an organism's ability to survive in its environment.

PTS: 1

37. ANS: A
Organisms demonstrate a wide range of tolerance for different environmental conditions. The ability of certain bacteria to withstand extremely acidic conditions illustrates their tolerance for pH fluctuations.

PTS: 1

38. ANS: B
Secondary succession describes the process of succession on land that already has soil and was previously inhabited.

PTS: 1

39. ANS: C
Photic and aphotic zones are defined by the ability of sunlight to penetrate an area. The deeper the water, the less likely that sunlight will penetrate it.

PTS: 1

40. ANS: A
Plankton are the primary organisms present in aquatic biomes. They live in the photic zone and include both autotrophs and heterotrophs.

PTS: 1

41. ANS: D PTS: 1 DIF: B OBJ: 3-4
NAT: C5

42. ANS: B PTS: 1 DIF: B OBJ: 3-2
NAT: C5 | C6 | F5

43. ANS: B PTS: 1 DIF: B OBJ: 3-1
NAT: F3

44. ANS: C PTS: 1 DIF: A OBJ: 3-2
NAT: C5 | C6 | F5

45. ANS: B PTS: 1 DIF: A OBJ: 3-2
NAT: C5 | C6 | F5

46. ANS: B PTS: 1 DIF: B OBJ: 3-4
NAT: C5

47. ANS: D PTS: 1 DIF: A OBJ: 3-4
NAT: C5

48. ANS: C PTS: 1 DIF: A OBJ: 3-6
NAT: C4 | C5 | C6

49. ANS: B PTS: 1 DIF: B OBJ: 3-5
NAT: C4 | C5 | C6

50. ANS: D PTS: 1 DIF: A OBJ: 3-5
NAT: C4 | C5 | C6

MODIFIED TRUE/FALSE

51. ANS: F, grassland biome

PTS: 1 DIF: B OBJ: 3-7 NAT: C4 | C5 | C6

52. ANS: F, taiga biome

PTS: 1 DIF: B OBJ: 3-7 NAT: C4 | C5 | C6

53. ANS: F, Temperature

PTS: 1 DIF: B OBJ: 3-6 NAT: C4 | C5 | C6

54. ANS: T PTS: 1 DIF: B
OBJ: 3-5 NAT: C4 | C5 | C6

55. ANS: F, climax community

PTS: 1 DIF: B OBJ: 3-3 NAT: C5 | C6 | F5

56. ANS: F, Limiting

PTS: 1 DIF: B OBJ: 3-1 NAT: F3

57. ANS: T PTS: 1 DIF: B
OBJ: 3-1 NAT: F3

58. ANS: F, tolerance

PTS: 1 DIF: B OBJ: 3-2 NAT: C5 | C6 | F5

59. ANS: F, temperate or deciduous forest

PTS: 1 DIF: B OBJ: 3-7 NAT: C4 | C5 | C6

60. ANS: F, biome

PTS: 1 DIF: B OBJ: 3-7 NAT: C4 | C5 | C6

61. ANS: F, primary

PTS: 1 DIF: B OBJ: 3-3 NAT: C5 | C6 | F5

62. ANS: F, climax community

PTS: 1 DIF: B OBJ: 3-4 NAT: C5

63. ANS: F, limiting factors

PTS: 1 DIF: B OBJ: 3-6 NAT: C4 | C5 | C6

64. ANS: F, intertidal

PTS: 1 DIF: B OBJ: 3-5 NAT: C4 | C5 | C6

65. ANS: T PTS: 1 DIF: B
OBJ: 3-5 NAT: C4 | C5 | C6

66. ANS: T PTS: 1 DIF: B
OBJ: 3-3 NAT: C5 | C6 | F5

67. ANS: F, estuary

PTS: 1 DIF: B OBJ: 3-5 NAT: C4 | C5 | C6

68. ANS: F, Permafrost

PTS: 1 DIF: B OBJ: 3-6 NAT: C4 | C5 | C6

69. ANS: F, plankton

PTS: 1 DIF: B OBJ: 3-1 NAT: F3

70. ANS: F, desert

PTS: 1 DIF: B OBJ: 3-7 NAT: C4 | C5 | C6

MATCHING

71. ANS: A PTS: 1 DIF: B OBJ: 2-2
NAT: C4 | C5 | C6

72. ANS: H PTS: 1 DIF: B OBJ: 2-2
NAT: C4 | C5 | C6

73. ANS: J PTS: 1 DIF: B OBJ: 2-2
NAT: C4 | C5 | C6

74. ANS: B PTS: 1 DIF: B OBJ: 2-1
NAT: C4 | C5 | C6

75. ANS: K PTS: 1 DIF: B OBJ: 2-5
NAT: C4 | C5 | C6

76. ANS: D PTS: 1 DIF: B OBJ: 2-2
NAT: C4 | C5 | C6

77. ANS: F PTS: 1 DIF: B OBJ: 2-2
NAT: C4 | C5 | C6

78. ANS: M PTS: 1 DIF: B OBJ: 2-5
NAT: C4 | C5 | C6
79. ANS: L PTS: 1 DIF: B OBJ: 2-4
NAT: C4 | C5 | C6
80. ANS: E PTS: 1 DIF: B OBJ: 2-4
NAT: C4 | C5 | C6