HBio Ecology Practice Test M&L

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

____ 1. The branch of biology dealing with interactions among organisms and between organisms and their environment is called
   a. economy.
   b. modeling.
   c. recycling.
   d. ecology.

____ 2. Which of the following descriptions about the organization of an ecosystem is correct?
   a. Communities make up species, which make up populations.
   b. Populations make up species, which make up communities.
   c. Species make up communities, which make up populations.
   d. Species make up populations, which make up communities.

____ 3. The simplest grouping of more than one kind of organism in the biosphere is
   a. a population.
   b. a community.
   c. an ecosystem.
   d. a species.

____ 4. The lowest level of environmental complexity that includes living and nonliving factors is the
   a. biome.
   b. community.
   c. ecosystem.
   d. biosphere.

____ 5. Which of the following is NOT a basic method used by ecologists to study the living world?
   a. experimenting
   b. animal training
   c. modeling
   d. observing

____ 6. Which ecological inquiry method is an ecologist using when he or she sets up a greenhouse and measures the effects of different levels of carbon dioxide on an endangered plant species?
   a. questioning
   b. observing
   c. experimenting
   d. modeling

____ 7. A mathematical formula designed to predict population fluctuations in a community could be called a(n)
   a. biological experiment.
   b. biological system.
   c. ecological model.
   d. ecological observation.
8. Plants are
   a. primary producers.
   b. primary consumers.
   c. herbivores.
   d. omnivores.

9. The algae at the beginning of the food chain in Figure 3–1 are
   a. primary consumers.
   b. decomposers.
   c. primary producers.
   d. heterotrophs.

10. How do most primary producers make their own food?
    a. by using light energy to make carbohydrates
    b. by using chemical energy to make carbohydrates
    c. by changing water into carbon dioxide
    d. by breaking down remains to make carbon dioxide

11. Which of the following organisms does NOT require sunlight to live?
    a. chemosynthetic bacteria
    b. algae
    c. trees
    d. photosynthetic bacteria

12. Compared to land, the open oceans
    a. are nutrient-rich environments.
    b. contain unlimited nitrogen.
    c. are nutrient-poor environments.
    d. are rich in silica and iron.

13. In which way are plants in a sunny mountain meadow and sulfur bacteria in a deep-sea volcanic vent alike?
    a. They both use photosynthesis to make their own food.
    b. They both produce carbohydrates and oxygen.
    c. They both use chemosynthesis to produce their own food.
    d. They both produce carbon and hydrogen.

14. Corn planted in a field that has been previously planted with legumes and then plowed under is likely to be
    a. less productive because legumes remove phosphorus from the soil.
    b. more productive because bacteria living on the roots of legumes fix nitrogen in the soil.
    c. more productive because nitrogen-fixing bacteria help to keep away pests.
    d. less productive because the legumes have already taken all the nitrogen, carbon, and phosphorus from the soil.
15. In what way are herbivores and carnivores alike?
   a. They both use photosynthesis to make their own food.
   b. They both obtain energy by consuming other organisms.
   c. They both directly consume producers.
   d. They both are considered to be autotrophs.

16. The total amount of living tissue within a given trophic level is called the
   a. organic mass.
   b. trophic mass.
   c. energy mass.
   d. biomass.

17. A model of the complex feeding interactions among organisms in a community from producers to decomposers is called a
   a. food web.
   b. ecosystem.
   c. food chain.
   d. population.

18. What animals eat both producers and consumers?
   a. herbivores
   b. omnivores
   c. chemotrophs
   d. autotrophs

19. What is the term for each step in the transfer of energy and matter within a food web?
   a. energy path
   b. food chain
   c. trophic level
   d. food pyramid

20. A bird stalks, kills, and then eats an insect. Based on its behavior, which pair of ecological terms describes the bird?
   a. herbivore, decomposer
   b. producer, heterotroph
   c. carnivore, consumer
   d. autotroph, herbivore
21. What goes in Box 5 of the food web in Figure 3–2?
   a. herbivores
   b. scavengers
   c. carnivores
   d. decomposers

22. What are the three kinds of ecological pyramids?
   a. producer, consumer, and decomposer
   b. energy, nutrient, and trophic
   c. energy, biomass, and numbers
   d. biotic, abiotic, and nutrient

23. Only 10 percent of the energy stored in an organism can be passed on to the next trophic level. Of the remaining energy, some is used for the organism's life processes, and the rest is
   a. used in reproduction.
   b. stored as body tissue.
   c. stored as fat.
   d. eliminated as heat.

24. A word that means the same thing as consumer is
   a. producer.
   b. autotroph.
   c. heterotroph.
   d. carbohydrate.

25. Matter can recycle through the biosphere because
   a. matter does not change into new compounds.
   b. matter is assembled into chemical compounds.
   c. biological systems do not use up matter, they transform it.
   d. biological systems use only carbon, oxygen, hydrogen, and nitrogen.
26. The repeated movement of water between Earth’s surface and the atmosphere is called
   a. the water cycle.
   b. the condensation cycle.
   c. precipitation.
   d. evaporation.

27. What is happening to water at D in Figure 3–3?
   a. Water is falling to the ground as precipitation.
   b. Water is evaporating from the ocean.
   c. Water is being taken up by plants through transpiration.
   d. Water is seeping into the ground to become groundwater.

28. Which part of Figure 3–3 shows transpiration?
   a. A on the left
   b. B on the left
   c. A on the right
   d. B on the right

29. Carbon cycles through the biosphere in all of the following processes EXCEPT
   a. photosynthesis.
   b. transpiration.
   c. burning of fossil fuels.
   d. decomposition of plants and animals.

30. Which part of the water cycle is a biological process?
   a. transpiration
   b. runoff
   c. precipitation
   d. condensation

31. Nitrogen fixation is carried out primarily by
   a. humans.
   b. plants.
   c. bacteria.
   d. consumers.
32. Animals get the most of the nitrogen they need
   a. by consuming plants or other animals.
   b. by breathing in atmospheric nitrogen.
   c. directly from bacteria in the soil.
   d. from the process of denitrification.

33. Organisms need nutrients in order to
   a. utilize hydrogen and oxygen.
   b. carry out essential life functions.
   c. recycle chemical compounds.
   d. carry out nitrogen fixation.

34. The movements of energy and nutrients through living systems are different because
   a. energy flows in one direction, and nutrients recycle.
   b. energy is limited in the biosphere, and nutrients are always available.
   c. nutrients flow in one direction, and energy recycles.
   d. energy forms chemical compounds, and nutrients are lost as heat.

35. Because of biogeochemical cycling,
   a. human activity has no effect on elements, chemical compounds, and other forms of matter.
   b. living organisms are not limited by any one nutrient.
   c. nutrients are circulated throughout the biosphere.
   d. many nutrients do not reach toxic concentrations in the biosphere.

36. If a lake receives a large input of a limiting nutrient, which of these would happen first?
   a. An algal bloom occurs.
   b. Algae begin to die and decomposers take over.
   c. Nitrogen compounds are recycled.
   d. The concentration of oxygen drops below the necessary level.

37. Why can’t the producers in some ecosystems make an unlimited supply of organic material?
   a. Temperatures are too hot for photosynthesis.
   b. Too many carnivores eat the producers.
   c. Energy needed to make organic material is lost as heat.
   d. One or more nutrients are in short supply.

38. Animals that get energy by eating the carcasses of other animals that have been killed by predators or have died of natural causes are called
   a. scavengers.
   b. omnivores.
   c. heterotrophs.
   d. detritivores.

39. Phosphorus is very important for living things because living organisms need phosphorus to
   a. make carbohydrates.
   b. form DNA and RNA.
   c. perform transpiration.
   d. cycle energy.

40. Each of the following is an abiotic factor in the environment EXCEPT
   a. plant life.
   b. soil type.
   c. rainfall.
   d. temperature.
41. Which is a biotic factor that affects the size of a population in a specific ecosystem?
   a. average temperature of the ecosystem
   b. type of soil in the ecosystem
   c. number and kinds of predators in the ecosystem
   d. concentration of oxygen in the ecosystem

42. During a long period when there is no rainfall, a mountain lion may temporarily leave its usual hunting territory to drink from a farm pond. This behavior is due to
   a. its need to find different foods to eat.
   b. the change in an abiotic factor in its environment.
   c. its need to find a new habitat.
   d. the change in a biotic factor in its environment.

43. Which is an example of how biotic and abiotic factors interact?
   a. Sunlight increases the temperature of pond water.
   b. Water and soil mix together to make mud.
   c. Tree roots split apart rocks in the ground.
   d. Humidity in the air forms fog in a valley.

44. What is at the base of all ecological pyramids?
   a. consumers
   b. decomposers
   c. producers
   d. scavengers

45. Which of the following is a food chain in the food web shown in Figure 3–4?
   a. tree, rabbit, hawk, snake
   b. grass, grasshopper, snake, hawk
   c. grass, caterpillar, robin, hawk
   d. tree, deer, mountain lion, fox
46. How does an area’s weather differ from the area’s climate?
   a. Weather involves temperature and precipitation and climate involves only temperature.
   b. An area’s weather depends on where it is located on Earth and the area’s climate does not.
   c. An area’s weather does not change very much and an area’s climate changes many times.
   d. Weather is the area’s day-to-day conditions and climate is the area’s average conditions.

47. All of the following factors contribute to Earth’s climate EXCEPT
   a. latitude.
   b. longitude.
   c. transport of heat by winds.
   d. shape and elevation of landmasses.

48. The greenhouse effect is
   a. something that has only occurred for the last 50 years.
   b. a natural phenomenon that maintains Earth’s temperature range.
   c. the result of the differences in the angle of the sun’s rays.
   d. an unnatural phenomenon that causes heat energy to be radiated back into the atmosphere.

49. Which of the following is a biological aspect of an organism’s niche?
   a. the water in the area
   b. the way it gets food
   c. amount of sunlight
   d. composition of soil

50. An organism’s niche is
   a. the range of physical and biological conditions in which an organism lives and the way it obtains what it needs to survive and reproduce.
   b. all the physical and biological factors in the organism’s environment.
   c. the range of temperatures that the organism needs to survive.
   d. a full description of the place an organism lives.

51. Several species of warblers can live in the same spruce tree ONLY because they
   a. have different habitats within the tree.
   b. don’t eat food from the tree.
   c. occupy different niches within the tree.
   d. can find different temperatures within the tree.

52. Polar bears live in the arctic. The arctic is their
   a. niche.
   b. habitat.
   c. tolerance.
   d. microclimate.

53. No two species can occupy the same niche in the same habitat at the same time
   a. because of the interactions that shape the ecosystem.
   b. unless the species require different abiotic factors.
   c. because of the competitive exclusion principle.
   d. unless the species require different biotic factors.
54. An interaction in which an animal feeds on plants is called
   a. carnivory.
   b. herbivory.
   c. predation.
   d. symbiosis.

55. What would happen if the population of the bird species shown in the ecosystem in Figure 4-1 were to suddenly decrease?
   a. The grass population would increase.
   b. The fish population would increase.
   c. The fish would occupy the birds’ niche.
   d. The grass and fish would compete for resources.

56. A wolf pack hunts, kills, and feeds on a moose. In this interaction, the wolves are
   a. hosts.
   b. prey.
   c. mutualists.
   d. predators.

57. A predator is an animal that
   a. kills and eats other animals
   b. eats plants.
   c. lives on another animal without harming it.
   d. lives inside another animal.

58. A symbiotic relationship in which both species benefit is
   a. commensalism.
   b. mutualism.
   c. predation.
   d. parasitism.

59. How is parasitism different from commensalism?
   a. Both organisms benefit in parasitism and only one organism benefits in commensalism.
   b. One organism benefits in parasitism and no organisms benefit in commensalism.
   c. One organism is harmed in parasitism and both organisms are harmed in commensalism.
   d. One organism is harmed in parasitism and no organisms are harmed in commensalism.
60. Primary succession would most likely occur after
   a. a forest fire.
   b. a lava flow.
   c. farm land is abandoned.
   d. a severe storm.

61. What is one difference between primary and secondary succession?
   a. Primary succession is rapid and secondary succession is slow.
   b. Secondary succession begins on soil and primary succession begins on newly exposed surfaces.
   c. Primary succession modifies the environment and secondary succession does not.
   d. Secondary succession begins with lichens and primary succession begins with trees.

62. Which of the following occurs during the ecological succession of an ecosystem?
   a. An ecosystem reaches a final, unchanging stage.
   b. Animals move out of the ecosystem until succession is complete.
   c. Living organisms modify their environment a little at a time.
   d. Parts of communities split off to form new communities.

63. Which is a factor that could interrupt the progress of succession?
   a. colonization of surfaces by lichens
   b. different animals appearing at each stage
   c. another natural disturbance
   d. long-term fluctuations in climate

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Figure 4–2

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64. Figure 4–2 shows succession in an ecosystem. What organisms are found in the climax community for this ecosystem?
   a. lichens and moss
   b. trees and shrubs
   c. weeds and grasses
   d. volcanoes and soil
65. A tropical rain forest may be unable to be returned to its original climax community after which of the following disturbances?
   a. burning of a forest fire
   b. clearing and farming
   c. volcanic eruption
   d. flooding after a hurricane

66. An example of a human-caused disturbance is
   a. a hurricane.
   b. forest-clearing.
   c. wildfires.
   d. growing lichens.

67. Which aquatic ecosystem is likely to be the warmest?
   a. a benthic system in the middle of the ocean
   b. an open ocean system near Antarctica
   c. a coastal ocean system at a temperate latitude
   d. an intertidal zone in a polar region

68. The nutrient availability of aquatic ecosystems is the
   a. amount of nitrogen, oxygen, and other elements dissolved in the water.
   b. number of other organisms present in the water.
   c. amount of rainfall the water receives.
   d. number of different animal species living in the water.

69. Are you likely to find zooplankton in the aphotic, benthic zone of an ocean?
   a. Yes. Zooplankton are chemosynthetic autotrophs.
   b. Yes. Zooplankton can photosynthesize in the dark.
   c. No. Zooplankton feed on phytoplankton and phytoplankton cannot photosynthesize in the dark.
   d. No. Zooplankton cannot chemosynthesize in the dark without the presence of oxygen in the water.

70. A wetland that contains a mixture of fresh water and salt water is called
   a. an estuary.
   b. a stream.
   c. a river.
   d. a pond.

71. Estuaries are commercially important because
   a. fish species that people buy and sell live in estuaries.
   b. tall buildings can be built in estuaries.
   c. lumber trees grow in estuaries.
   d. fossil fuels are found in estuaries.

72. Which of the following is a factor that makes estuaries unique?
   a. They contain both phytoplankton and zooplankton.
   b. They are very deep and dark but contain a lot of producers.
   c. They are found in mountain ranges and are formed by melting snow.
   d. They have a lot of biomass but not a large variety of species.
73. The photic zone
   a. extends to the bottom of the open ocean.
   b. extends to a depth of about 200 meters.
   c. is deep, cold, and permanently dark.
   d. is where chemosynthetic bacteria are the producers.

74. Which of the following statements is NOT true about the open ocean?
   a. The open ocean has low levels of nutrients.
   b. Organisms in the deep ocean are exposed to frigid temperatures and total darkness.
   c. The open ocean begins at the low-tide mark and extends to the end of the continental shelf.
   d. Most of the photosynthetic activity on Earth occurs in the open ocean within the photic zone.

75. The pattern of spacing between individuals across the range of a population is its
   a. growth rate.
   b. distribution.
   c. density.
   d. habitat.

76. There are 150 Saguaro cactus plants per square kilometer in a 10-square-kilometer area of Arizona desert. To which population characteristic does this information refer?
   a. growth rate
   b. geographic range
   c. age structure
   d. population density

77. If you know the range of a population, then you know
   a. the number of individuals that live in an area.
   b. the areas that are inhabited by the population.
   c. the birth rate and the death rate.
   d. the type of climate it lives in.

78. A small farming community in Texas covers 14 square kilometers. There are 420 individuals who live within the town limits. What is the population density of this community?
   a. 0.03 individuals per square kilometer
   b. 53 individuals per square kilometer
   c. 30 individuals per square kilometer
   d. 10.24 individuals per square kilometer

79. Which of the following gives you information about a population's age structure?
   a. There are 10 males and 15 females under the age of two.
   b. There are 25 individuals with a square kilometer.
   c. All individuals are found at least 10 meters away from others.
   d. Individuals live in rain forests in tropical South America.

80. Which of the following is NOT one of the factors that play a role in population growth rate?
   a. immigration
   b. death rate
   c. emigration
   d. demography
81. The movement of organisms into a range is called
   a. immigration.
   b. emigration.
   c. population shift.
   d. carrying capacity.

82. Which of the following could describe a population that is decreasing in size?
   a. The birthrate and the death rate remain the same.
   b. The death rate is becoming lower than the birthrate.
   c. The death rate is constant and the birthrate is increasing.
   d. The death rate is becoming higher than the birthrate.

83. If immigration and emigration numbers remain equal, which of these could cause a slowed growth rate?
   a. increased birthrate
   b. constant death rate
   c. decreased birthrate
   d. constant birthrate

84. Which are two ways a population can decrease in size?
   a. immigration and emigration
   b. increased death rate and immigration
   c. decreased birthrate and emigration
   d. emigration and increased birthrate

85. The graph in Figure 5–1 shows the growth of a bacterial population. Which of the following correctly
describes the growth curve?
   a. logistic
   b. limiting
   c. demographic
   d. exponential
Suppose that a species of toads is introduced into a new environment in an attempt to reduce the population of insects. The toad has no natural predators in the new environment. The toad population would most likely
a. increase exponentially.
b. increase logistically.
c. decrease rapidly and die out.
d. remain the same.
87. Which of the following graphs is a graph showing exponential growth?
88. During some kinds of population growth, the size of each generation of offspring is larger than the generation before it. So, as the population gets larger, it grows more quickly. This situation is called
   a. logistic growth.
   b. growth density.
   c. exponential growth.
   d. multiple growth.

89. Which factor might NOT contribute to an exponential growth rate in a given population?
   a. lower death rates
   b. higher birthrates
   c. less competition
   d. reduced resources

90. The various growth phases through which most populations go are represented on
   a. a logistic growth curve.
   b. an exponential growth curve.
   c. a normal curve.
   d. a population curve.

91. As resources in a population become less available, the population
   a. declines rapidly.
   b. increases slowly.
   c. reaches carrying capacity.
   d. enters a phase of exponential growth.

92. In a logistic growth curve, exponential growth is the phase in which the population
   a. reaches carrying capacity.
   b. grows quickly.
   c. growth begins to slow down.
   d. growth stops.

93. When the exponential phase of a logistic growth curve of a population ceases,
   a. the size of the population drops.
   b. the size of the population stays the same.
   c. population growth begins to slow down.
   d. population growth begins to speed up.

94. How are Phase 1 and Phase 2 of logistic growth similar?
   a. A population is increasing, moving toward its carrying capacity during both phases.
   b. A population is at its carrying capacity during both phases.
   c. The death rate is higher than the birth rate during both phases.
   d. The emigration rate is higher than the immigration rate during both phases.

95. Something that controls the growth or size of a population is
   a. the carrying capacity.
   b. the growth rate.
   c. a limiting factor.
   d. a growth factor.

96. Sea otters live in the ocean. Which of the following is NOT likely to be a limiting factor on the sea otter population?
   a. disease
   b. competition
   c. drought
   d. predation
97. Which will reduce competition within a species' population?
   a. fewer individuals
   b. higher birthrate
   c. fewer resources
   d. higher population density

98. If a population grows larger than the carrying capacity of the environment, which of these is most likely to happen?
   a. The death rate may rise.
   b. The birthrate may rise.
   c. The death rate must fall.
   d. The birthrate must fall.

99. Water lilies do not grow in desert sand because water availability to these plants in a desert is
   a. a limiting factor.
   b. the carrying capacity.
   c. a competition factor.
   d. the logistic growth curve.

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Figure 5-2

Wolves and Moose Populations on Isle Royale

![Graph showing population changes over time.]

100. Using Figure 5–2, what is the most likely cause of the decrease in moose population immediately after 1995?
   a. Poisonous plants killed off many moose.
   b. Many moose reached old age and died.
   c. Overcrowding caused competition in the moose population.
   d. A decrease in predators caused competition in the moose population.

101. Each of the following is a density-dependent limiting factor EXCEPT
   a. competition.
   b. temperature.
   c. crowding.
   d. disease.

102. Which would be least likely to be affected by a density-dependent limiting factor?
   a. a small, scattered population
   b. a population with a high birthrate
   c. a large, dense population
   d. a population with a high immigration rate
103. Which density-dependent factors other than the predator/prey relationship affected the populations of moose and wolves on Isle Royale?
   a. extreme temperatures for the moose and flooding for the wolves
   b. parasitic wasps for the wolves and clear-cut forest for the moose
   c. a hurricane followed by drought for both moose and wolves
   d. food availability for the moose and disease for the wolf

104. A disease resulting in the deaths of one third of a dense population of bats in a cave would be a
   a. density-dependent limiting factor.
   b. result of exponential growth.
   c. density-independent limiting factor.
   d. nutrient-limiting factor.

105. Which of the following is a density-independent limiting factor?
   a. earthquake
   b. disease
   c. emigration
   d. parasitism

106. Which of the following is a density-independent limiting factor?
   a. a struggle for food, water, space, or sunlight
   b. predator/prey relationships
   c. the eruption of a volcano
   d. parasitism and disease

107. After a natural disaster such as a hurricane or a drought, a population
   a. can thrive and increase.
   b. can be mostly killed off.
   c. will experience exponential growth.
   d. will reach its carrying capacity.
108. The graph in Figure 5–3 shows the changes in a mosquito population. What caused the changes seen in the graph?

a. a reduction in resources  
b. a increase in predation.  
c. a density-independent limiting factor  
d. a density-dependent limiting factor

109. In nature, it is difficult to observe the effects density-independent limiting factors on real populations because density-independent limiting factors

a. strike only dense populations.  
b. often have a greater effect on denser populations.  
c. usually do not have any effect on populations.  
d. usually affect only a small part of a habitat.

110. Demography is the scientific study of

a. parasitism and disease.  
b. modernized countries.  
c. human populations.  
d. none of the above

111. Demographic transition is change from high birthrates and high death rates to

a. exponential growth.  
b. low birthrates and low death rates.  
c. low birthrates and high death rates.  
d. indefinite growth.
112. About 500 years ago, the world's population started
   a. decreasing.
   b. to reach carrying capacity.
   c. growing more rapidly.
   d. to level off.

113. Countries in the first stage of demographic transition have
   a. a high death rate and a high birthrate.
   b. a high death rate and a low birthrate.
   c. a slowly growing population.
   d. more old people than young people.

114. The human population experienced exponential growth just after
   a. agriculture began.
   b. plowing and irrigation began.
   c. the bubonic plague began.
   d. the Industrial Revolution began.

115. The anticipated human population by the year 2050 is about
   a. 7.8 billion.
   b. 9 billion.
   c. 9 trillion.
   d. 78 billion.

116. In Rwanda, there are more young children than teenagers, and more teenagers than adults. This age structure indicates a population that
   a. has stopped growing.
   b. will double in 30 years.
   c. has a steady growth rate.
   d. will decrease in 30 years.

117. In countries like India, the human population is growing
   a. exponentially.
   b. transitionally.
   c. logistically.
   d. demographically.

118. Most of the worldwide human population is growing exponentially because
   a. human populations have not reached their exponential curve.
   b. most countries have not yet completed the demographic transition.
   c. human populations do not conform to the logistic model.
   d. the food supply is limitless.

119. The human population in Canada contains almost equal numbers of people in each age group. This means that the population in Canada will
   a. double in 30 years.
   b. grow slowly but steadily.
   c. decrease exponentially.
   d. decrease to its carrying capacity.

120. A benefit of monoculture farming practices is
   a. the ability to grow a lot of food.
   b. the ability to spend less money on fertilizer.
   c. the use of less water for irrigation.
   d. disease and pest resistance of the crops.
121. Imported plants and animals in Hawaii have
   a. caused native species to die out.
   b. increased the native bird species.
   c. improved soil fertility.
   d. increased crop yields.

122. Beginning in the late 1700s, people who settled in the islands of Hawaii changed the islands by
   a. clearing trees for farming.
   b. mining silver.
   c. fishing only during the spawning season.
   d. making the islands a nature preserve.

123. A developer wants to build new a new housing development in or around a large city. Which of the following plans would be LEAST harmful to the environment?
   a. Clearing a forested area outside of the city to build houses.
   b. Building apartments at the site of an abandoned factory in the city.
   c. Building a neighborhood in a meadow at the edge of the city.
   d. Filling a wetland area and building oceanfront condominiums.

124. What is one negative consequence of the Industrial Revolution?
   a. fewer jobs for people living in cities
   b. more expensive clothes
   c. environmental harm from the burning of fossil fuels
   d. people working longer hours at their jobs

125. An example of a renewable resource is
   a. oil.
   b. natural gas.
   c. coal.
   d. trees.

126. Ideally, sustainable development should
   a. put the protection of the environment ahead of human needs.
   b. provide for human needs at the expense of the environment.
   c. use more natural resources to make goods to meet human needs.
   d. preserve ecosystems while providing for human needs.

127. Breathable air and drinkable water are
   a. always free to everyone.
   b. examples of ecosystem goods and services.
   c. not easy to find in healthy ecosystems.
   d. provided by city governments.

128. Which of the following is true about nonrenewable resources?
   a. They can be replaced through sustainable development.
   b. There are plenty for people to use for a very long time.
   c. Using them up will help keep the environment healthy.
   d. They cannot be replaced after they are used up.

129. Using environmental resources in a way that does not cause long-term environmental harm is like
   a. spending only as much money as you earn.
   b. borrowing money that you cannot pay back for a long time.
   c. printing more money when you need it.
   d. lending money to people who can’t pay it back.
130. Which concept does the graph in Figure 6–1 illustrate?
   a. deforestation
   b. desertification
   c. the decrease of tree heights over time
   d. the increase of young trees over time

131. The 1930s Dust Bowl in the Great Plains was caused by
   a. deforestation.
   b. contour plowing.
   c. using renewable resources.
   d. poor farming practices.

132. When farming, overgrazing, climate change, and/or seasonal drought change farmland into land that cannot support plant life, it is called
   a. desertification.
   b. depletion.
   c. deforestation.
   d. monoculture.
133. Which of the following is NOT considered a sustainable-development strategy for management of Earth’s resources?
   a. contour plowing
   b. desertification
   c. crop rotation
   d. selective harvesting of trees

134. Farmers can reduce soil erosion by
   a. increasing irrigation.
   b. contour plowing.
   c. grazing cattle on the land.
   d. plowing up roots.

135. An example of sustainable resource use is the use of predators and parasites to
   a. harm natural resources.
   b. pollinate plants.
   c. control pest insects.
   d. eat unwanted plants.

---

**Figure 6-2**

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136. What is shown in Figure 6-2 above?
   a. point source pollution
   b. nonpoint source pollution
   c. water conservation
   d. water treatment

137. DDT was used to
   a. fertilize soil.
   b. kill insects.
   c. form ozone.
   d. feed animals.
138. One property that makes DDT hazardous over the long run is that DDT is
   a. an insecticide.
   b. a perfect pesticide.
   c. subject to biological magnification.
   d. deadly to herbivores.

139. As DDT moves up the trophic levels in food chains or food webs its concentration
   a. stays the same.
   b. increases.
   c. decreases.
   d. is eliminated.

140. The sulfur and nitrogen compounds in smog combine with water to form
   a. ozone.
   b. ammonia.
   c. acid rain.
   d. chlorofluorocarbons.

141. The gray-brown haze often found over large cities is called
   a. acid rain.
   b. greenhouse gases.
   c. particulates.
   d. smog.

---

**Emission and Growth Trends**

![Graph showing emission and growth trends](image)

**Figure 6–3**

142. What is a valid conclusion that can be drawn from the graph in Figure 6–3 above?
   a. Less energy is used when people travel farther by car.
   b. Although people are traveling more by car, pollution has decreased.
   c. Pollution increases as energy consumption increases.
   d. Energy consumption has changed more than total emissions.
143. Raising cattle and farming rice contribute to air pollution by
   a. releasing sulfur compounds that form acid rain.
   b. producing particulates into the air.
   c. producing smog which reacts to form dangerous ozone gas.
   d. releasing the greenhouse gas methane into the atmosphere.

144. Air and water pollution have been reduced by
   a. using fossil fuels in factories.
   b. using only unleaded gasoline.
   c. raising more cattle for food.
   d. increasing biological magnification.

145. The number of different species in the biosphere or in a particular area is called
   a. biodiversity.
   b. ecosystem diversity.
   c. genetic diversity.
   d. species diversity.

146. How are species diversity and genetic diversity different?
   a. Species diversity is evaluated only in ecosystems, while genetic diversity is evaluated in
      the entire biosphere.
   b. Species diversity measures the number of species in the biosphere, while genetic
      diversity measures the variety of genes in the biosphere, including genetic variation
      within species.
   c. Species diversity measures the number of individuals of a species, while genetic
      diversity measures the total variety of species.
   d. Conservation biology is concerned with species diversity, but not with genetic diversity.

147. Biodiversity is valuable partly because it
   a. gives us interesting things to look at.
   b. tells us about many other species.
   c. contributes to medicine and agriculture.
   d. provides humans with resistance to disease.

148. What is meant by a “natural library” of genetic information in reference to biodiversity?
   a. The biodiversity of plants and animals is interesting to read about.
   b. All living organisms contain genetic information that humans can research.
   c. Species provide humans with many useful products to enhance our lives.
   d. We have much to admire in the many forms of life that surround us.

149. Introduced species can threaten biodiversity because they can
   a. cause desertification.
   b. cause biological magnification.
   c. crowd out native species.
   d. reduce the amount of fertile land.

150. All of the following are threats to biodiversity EXCEPT
   a. biological magnification of toxic compounds.
   b. habitat fragmentation.
   c. introduced species.
   d. habitat preservation.
151. One of the greatest threats today to biodiversity is
   a. old-growth forests.
   b. ozone depletion.
   c. altered habitats.
   d. sustainable development.

152. A major factor that negatively affects biodiversity is
   a. biological magnification.
   b. habitat fragmentation.
   c. contour plowing.
   d. nonrenewable resources.

153. An ecological hot spot is an area where
   a. habitats and species show a high amount of biodiversity.
   b. hunting is encouraged.
   c. many habitats and species are at high risk of extinction.
   d. species diversity is too high.

154. The goals of biodiversity conservation include all of the following EXCEPT
   a. protecting individual species
   b. introducing exotic species into new environments.
   c. preserving habitats and ecosystems.
   d. making sure local people benefit from conservation efforts.

155. By preserving hot spots, ecologists hope to protect species in danger of extinction due to
   a. captive breeding programs.
   b. expanding national parks.
   c. human activity.
   d. biological magnification.

156. Protecting an entire ecosystem ensures that
   a. captive breeding programs will succeed.
   b. existing parks and reserves will expand.
   c. governments will set aside land.
   d. interactions among many species will be preserved.

157. One measure of the human impact on the biosphere is called
   a. biological magnification.
   b. biodiversity.
   c. an ecological hot spot.
   d. an ecological footprint.

158. The land and water ecosystems that provide the resources that a person uses and that neutralize that person’s wastes is part of that person’s
   a. biodiversity.
   b. ecological footprint.
   c. habitat.
   d. ecological sustainability.
159. The map in Figure 6-4 above shows the ecological footprints of most of the countries in the world. What conclusion can be drawn from this map?
   a. Most countries have ecological footprints of approximately the same size.
   b. Antarctica has the smallest ecological footprint of all continents shown.
   c. The ecological footprint of North America is small compared to the ecological footprint of other continents.
   d. The ecological footprint of the United States is large compared to the ecological footprints of other countries.

160. When calculating a population’s ecological footprint, one has to take into account the
   a. average height of the people in the population.
   b. location of the population.
   c. resources needed to clean up the population’s waste.
   d. biodiversity of the population.

161. The first step to using ecology to solve environmental problems is to
   a. ban the burning of fossil fuels.
   b. close businesses that pollute.
   c. use alternative fuels.
   d. identify the problem.

162. Success at solving an environmental problem is more likely when researchers follow the basic principles of ecology because
   a. ecological solutions to problems are usually very easy to implement and can be done quickly.
   b. most people in the world are more interested in saving the environment than in their own comfort and convenience.
   c. ecology uses scientific research to identify the cause of the problem and the best practices to solve the problem.
   d. ecologists are very good at influencing government officials into changing laws to improve the environment.
163. Changing behavior is the third step in using ecology to move toward a sustainable future. Which of the following is the most successful example of environmental improvement due to changed behavior?
   a. Fish populations are increasing because of the widespread use of aquaculture.
   b. Climate change has stopped because of the use of electric cars.
   c. The hole in the ozone layer is getting smaller because of decreased CFC use.
   d. Tropical rainforests are growing in size because new trees are being planted.

![Change in Global Land-Surface Air Temperature, 1850–2005]

Figure 6–5

164. The data in the graph in Figure 6–5 above helped ecologists identify which environmental problem?
   a. the hole in the ozone layer
   b. global warming
   c. habitat fragmentation
   d. desertification
MULTIPLE CHOICE

1. ANS: D       PTS:  1       DIF:   L1       REF:   p. 65
   OBJ: 3.1.1 Describe the study of ecology.
   TOP: Foundation Edition       MSC: knowledge
   STA: SC.912.N.1.2

2. ANS: D       PTS:  1       DIF:   L2       REF:   p. 64 | p. 65
   OBJ: 3.1.1 Describe the study of ecology.
   TOP: Foundation Edition       MSC: comprehension
   STA: SC.912.N.1.2

3. ANS: B       PTS:  1       DIF:   L2       REF:   p. 64
   OBJ: 3.1.1 Describe the study of ecology.
   TOP: Foundation Edition       MSC: application
   STA: SC.912.N.1.2

4. ANS: C       PTS:  1       DIF:   L2       REF:   p. 65
   OBJ: 3.1.1 Describe the study of ecology.
   TOP: Foundation Edition       MSC: application
   STA: SC.912.N.1.2

5. ANS: B       PTS:  1       DIF:   L1       REF:   p. 68
   OBJ: 3.1.3 Describe the methods used to study ecology.
   STA: SC.912.N.1.1.2 | SC.912.N.1.2 | SC.912.N.3.5
   TOP: Foundation Edition
   MSC: knowledge

6. ANS: C       PTS:  1       DIF:   L2       REF:   p. 68
   OBJ: 3.1.3 Describe the methods used to study ecology.
   STA: SC.912.N.1.1.2 | SC.912.N.1.2 | SC.912.N.3.5
   TOP: Foundation Edition
   MSC: comprehension

7. ANS: C       PTS:  1       DIF:   L2       REF:   p. 68
   OBJ: 3.1.3 Describe the methods used to study ecology.
   STA: SC.912.N.1.1.2 | SC.912.N.1.2 | SC.912.N.3.5
   MSC: application

8. ANS: A       PTS:  1       DIF:   L1       REF:   p. 69
   OBJ: 3.2.1 Define primary producers.
   STA: SC.912.L.17.9
   TOP: Foundation Edition
   MSC: knowledge

9. ANS: C       PTS:  1       DIF:   L2       REF:   p. 73
   OBJ: 3.2.1 Define primary producers.
   STA: SC.912.L.17.9
   TOP: Foundation Edition
   MSC: application

10. ANS: A      PTS:  1       DIF:   L3       REF:   p. 69 | p. 70
    OBJ: 3.2.1 Define primary producers.
    STA: SC.912.L.17.9
    MSC: synthesis

11. ANS: A      PTS:  1       DIF:   L2       REF:   p. 70
    OBJ: 3.2.1 Define primary producers.
    STA: SC.912.L.17.9
    TOP: Foundation Edition
    MSC: application

12. ANS: C      PTS:  1       DIF:   L1       REF:   p. 86
    OBJ: 3.4.4 Describe how the availability of nutrients affects the productivity of ecosystems.
    STA: SC.912.L.17.2
    TOP: Foundation Edition
    MSC: knowledge

13. ANS: B      PTS:  1       DIF:   L3       REF:   p. 69 | p. 70
    OBJ: 3.2.1 Define primary producers.
    STA: SC.912.L.17.9
    MSC: analysis
14. ANS: B  PTS: 1  DIF: L3  REF: p. 84 | p. 86
   OBJ: 3.4.4 Describe how the availability of nutrients affects the productivity of ecosystems.
   STA: SC.912.L.17.2  MSC: synthesis

15. ANS: B  PTS: 1  DIF: L2  REF: p. 71
   OBJ: 3.2.2 Describe how consumers obtain energy and nutrients.
   STA: SC.912.L.17.9  TOP: Foundation Edition
   MSC: comprehension

16. ANS: D  PTS: 1  DIF: L2  REF: p. 78
   OBJ: 3.3.2 Identify the three types of ecological pyramids.
   STA: SC.912.N.1.1.2 | SC.912.N.1.2 | SC.912.N.3.5  TOP: Foundation Edition
   MSC: knowledge

17. ANS: A  PTS: 1  DIF: L3  REF: p. 68 | p. 74
   OBJ: 3.1.3 Describe the methods used to study ecology.
   STA: SC.912.L.17.9  MSC: analysis

18. ANS: B  PTS: 1  DIF: L2  REF: p. 71
   OBJ: 3.2.2 Describe how consumers obtain energy and nutrients.
   STA: SC.912.L.17.9  TOP: Foundation Edition
   MSC: comprehension

19. ANS: C  PTS: 1  DIF: L2  REF: p. 77
   OBJ: 3.3.1 Trace the flow of energy through living systems.
   STA: SC.912.L.17.9  TOP: Foundation Edition
   MSC: knowledge

20. ANS: C  PTS: 1  DIF: L3  REF: p. 71
    OBJ: 3.2.2 Describe how consumers obtain energy and nutrients.
    STA: SC.912.L.17.9  MSC: analysis

    OBJ: 3.3.1 Trace the flow of energy through living systems.
    STA: SC.912.L.17.9  TOP: Foundation Edition
    MSC: application

22. ANS: C  PTS: 1  DIF: L2  REF: p. 77 | p. 78
    OBJ: 3.3.2 Identify the three types of ecological pyramids.
    STA: SC.912.L.17.9  TOP: Foundation Edition
    MSC: knowledge

23. ANS: D  PTS: 1  DIF: L1  REF: p. 77
    OBJ: 3.3.2 Identify the three types of ecological pyramids.
    STA: SC.912.L.17.9  MSC: knowledge

24. ANS: C  PTS: 1  DIF: L1  REF: p. 71
    OBJ: 3.2.2 Describe how consumers obtain energy and nutrients.
    STA: SC.912.L.17.9  TOP: Foundation Edition
    MSC: knowledge

25. ANS: C  PTS: 1  DIF: L2  REF: p. 79
    OBJ: 3.4.1 Describe how matter cycles among the living and nonliving parts of an ecosystem.
    STA: SC.912.L.17.10  TOP: Foundation Edition
    MSC: knowledge

26. ANS: A  PTS: 1  DIF: L1  REF: p. 81
    OBJ: 3.4.2 Describe how water cycles through the biosphere.
    STA: SC.912.L.17.10  TOP: Foundation Edition
    MSC: knowledge

27. ANS: D  PTS: 1  DIF: L2  REF: p. 81
    OBJ: 3.4.2 Describe how water cycles through the biosphere.
    STA: SC.912.L.17.10  TOP: Foundation Edition
    MSC: application
28. ANS: D  PTS: 1  DIF: L2  REF: p. 81
   OBJ: 3.4.2 Describe how water cycles through the biosphere.
   STA: SC.912.L.17.10
   MSC: application

29. ANS: B  PTS: 1  DIF: L3  REF: p. 82 | p. 83
   OBJ: 3.4.1 Describe how matter cycles among the living and nonliving parts of an ecosystem.
   STA: SC.912.L.17.10
   MSC: application

30. ANS: A  PTS: 1  DIF: L3  REF: p. 81
   OBJ: 3.4.2 Describe how water cycles through the biosphere.
   STA: SC.912.L.17.10
   MSC: synthesis

31. ANS: C  PTS: 1  DIF: L1  REF: p. 84
   OBJ: 3.4.3 Explain why nutrients are important in living systems.
   STA: SC.912.L.17.10
   MSC: knowledge

32. ANS: A  PTS: 1  DIF: L2  REF: p. 84
   OBJ: 3.4.3 Explain why nutrients are important in living systems.
   STA: SC.912.L.17.10
   MSC: application

33. ANS: B  PTS: 1  DIF: L1  REF: p. 82
   OBJ: 3.4.3 Explain why nutrients are important in living systems.
   STA: SC.912.L.17.10
   MSC: knowledge

34. ANS: A  PTS: 1  DIF: L2  REF: p. 73 | p. 82
   OBJ: 3.4.3 Explain why nutrients are important in living systems.
   STA: SC.912.L.17.10
   MSC: comprehension

35. ANS: C  PTS: 1  DIF: L3  REF: p. 79 | p. 80 | p. 82
   OBJ: 3.4.1 Describe how matter cycles among the living and nonliving parts of an ecosystem.
   STA: SC.912.L.17.10
   MSC: analysis

36. ANS: A  PTS: 1  DIF: L2  REF: p. 86
   OBJ: 3.4.4 Describe how the availability of nutrients affects the productivity of ecosystems.
   STA: SC.912.L.17.2
   MSC: comprehension

37. ANS: D  PTS: 1  DIF: L2  REF: p. 85
   OBJ: 3.4.4 Describe how the availability of nutrients affects the productivity of ecosystems.
   STA: SC.912.L.17.2
   MSC: synthesis

38. ANS: A  PTS: 1  DIF: L2  REF: p. 71
   OBJ: 3.2.2 Describe how consumers obtain energy and nutrients.
   STA: SC.912.L.17.9
   MSC: synthesis

39. ANS: B  PTS: 1  DIF: L2  REF: p. 85
   OBJ: 3.4.3 Explain why nutrients are important in living systems.
   STA: SC.912.L.17.10
   MSC: comprehension
40. ANS: A  PTS: 1  DIF: L1  REF: p. 66
   OBJ: 3.1.2 Explain how biotic and abiotic factors influence an ecosystem.
   STA: SC.912.L.17.7  TOP: Foundation Edition
   MSC: knowledge

41. ANS: C  PTS: 1  DIF: L2  REF: p. 66
   OBJ: 3.1.2 Explain how biotic and abiotic factors influence an ecosystem.
   STA: SC.912.L.17.7  TOP: Foundation Edition
   MSC: application

42. ANS: B  PTS: 1  DIF: L3  REF: p. 66 | p. 67
   OBJ: 3.1.2 Explain how biotic and abiotic factors influence an ecosystem.
   STA: SC.912.L.17.7  TOP: Foundation Edition
   MSC: analysis

43. ANS: C  PTS: 1  DIF: L2  REF: p. 67
   OBJ: 3.1.2 Explain how biotic and abiotic factors influence an ecosystem.
   STA: SC.912.L.17.7  TOP: Foundation Edition
   MSC: application

44. ANS: C  PTS: 1  DIF: L2  REF: p. 77 | p. 78
   OBJ: 3.3.2 Identify the three types of ecological pyramids.
   STA: SC.912.L.17.7  TOP: Foundation Edition
   MSC: analysis

45. ANS: B  PTS: 1  DIF: L3  REF: p. 74
   OBJ: 3.3.1 Trace the flow of energy through living systems.
   STA: SC.912.L.17.9  TOP: Foundation Edition
   MSC: application

46. ANS: D  PTS: 1  DIF: L2  REF: p. 96
   OBJ: 4.1.1 Differentiate between weather and climate.
   STA: SC.912.L.17.9  TOP: Foundation Edition
   MSC: analysis

47. ANS: B  PTS: 1  DIF: L2  REF: p. 96 | p. 97 | p. 98
   OBJ: 4.1.2 Identify the factors that influence climate.
   STA: SC.912.L.17.9  TOP: Foundation Edition
   MSC: comprehension

48. ANS: B  PTS: 1  DIF: L2  REF: p. 97
   OBJ: 4.1.2 Identify the factors that influence climate.
   STA: SC.912.L.17.9  TOP: Foundation Edition
   MSC: comprehension

49. ANS: B  PTS: 1  DIF: L2  REF: p. 100
   OBJ: 4.2.1 Define niche.
   STA: SC.912.L.17.6  TOP: Foundation Edition
   MSC: analysis

50. ANS: A  PTS: 1  DIF: L1  REF: p. 100
   OBJ: 4.2.1 Define niche.
   STA: SC.912.L.17.6  TOP: Foundation Edition
   MSC: knowledge

51. ANS: C  PTS: 1  DIF: L2  REF: p. 101
   OBJ: 4.2.2 Describe the role competition plays in shaping communities.
   STA: SC.912.L.17.6  TOP: Foundation Edition
   MSC: application

52. ANS: B  PTS: 1  DIF: L2  REF: p. 99
   OBJ: 4.2.1 Define niche.
   STA: SC.912.L.17.6  TOP: Foundation Edition
   MSC: application

53. ANS: C  PTS: 1  DIF: L2  REF: p. 101
   OBJ: 4.2.2 Describe the role competition plays in shaping communities.
   STA: SC.912.L.17.6  TOP: Foundation Edition
   MSC: analysis
54. ANS: B  PTS: 1  DIF: L1  REF: p. 102
   OBJ: 4.2.3 Describe the role predation and herbivory play in shaping communities.
   STA: SC.912.N.1.1.6 | SC.912.L.17.6  TOP: Foundation Edition
   MSC: knowledge

55. ANS: B  PTS: 1  DIF: L2  REF: p. 102
   OBJ: 4.2.3 Describe the role predation and herbivory play in shaping communities.
   STA: SC.912.N.1.1.6 | SC.912.L.17.6  MSC: synthesis
   TOP: Foundation Edition

56. ANS: D  PTS: 1  DIF: L2  REF: p. 102
   OBJ: 4.2.3 Describe the role predation and herbivory play in shaping communities.
   STA: SC.912.N.1.1.6 | SC.912.L.17.6  TOP: Foundation Edition
   MSC: comprehension

57. ANS: A  PTS: 1  DIF: L1  REF: p. 102
   OBJ: 4.2.3 Describe the role predation and herbivory play in shaping communities.
   STA: SC.912.N.1.1.6 | SC.912.L.17.6  TOP: Foundation Edition
   MSC: knowledge

58. ANS: B  PTS: 1  DIF: L1  REF: p. 103
   OBJ: 4.2.4 Identify the three types of symbiotic relationships in nature.
   STA: SC.912.L.17.6  TOP: Foundation Edition
   MSC: knowledge

59. ANS: D  PTS: 1  DIF: L2  REF: p. 104
   OBJ: 4.2.4 Identify the three types of symbiotic relationships in nature.
   STA: SC.912.L.17.6  TOP: Foundation Edition
   MSC: analysis

60. ANS: B  PTS: 1  DIF: L1  REF: p. 106
   OBJ: 4.3.1 Describe how ecosystems recover from a disturbance.
   STA: SC.912.L.17.4  TOP: Foundation Edition
   MSC: knowledge

   OBJ: 4.3.1 Describe how ecosystems recover from a disturbance.
   STA: SC.912.L.17.4  TOP: Foundation Edition
   MSC: comprehension

   OBJ: 4.3.1 Describe how ecosystems recover from a disturbance.
   STA: SC.912.L.17.4  MSC: comprehension

63. ANS: C  PTS: 1  DIF: L2  REF: p. 108
   OBJ: 4.3.1 Describe how ecosystems recover from a disturbance.
   STA: SC.912.L.17.4  TOP: Foundation Edition
   MSC: application

64. ANS: B  PTS: 1  DIF: L2  REF: p. 108
   OBJ: 4.3.1 Describe how ecosystems recover from a disturbance.
   STA: SC.912.L.17.4  TOP: Foundation Edition
   MSC: application

   OBJ: 4.3.2 Compare succession after a natural disturbance with succession after a human-caused disturbance.
   STA: SC.912.L.17.4 | SC.912.L.17.16  MSC: analysis
66. **ANS: B**  
**PTS: 1**  
**DIF: L1**  
**REF: p. 109**  
**OBJ: 4.3.2 Compare succession after a natural disturbance with succession after a human-caused disturbance.**  
**STA: SC.912.L.17.4 | SC.912.L.17.16**  
**TOP: Foundation Edition**  
**MSC: comprehension**

67. **ANS: C**  
**PTS: 1**  
**DIF: L1**  
**REF: p. 117 | p. 118 | p. 120 | p. 121**  
**OBJ: 4.5.1 Discuss the factors that affect aquatic ecosystems.**  
**STA: SC.912.L.17.2 | SC.912.L.17.3**  
**TOP: Foundation Edition**  
**MSC: application**

68. **ANS: A**  
**PTS: 1**  
**DIF: L2**  
**REF: p. 118**  
**OBJ: 4.5.1 Discuss the factors that affect aquatic ecosystems.**  
**STA: SC.912.L.17.2 | SC.912.L.17.3**  
**TOP: Foundation Edition**  
**MSC: comprehension**

69. **ANS: C**  
**PTS: 1**  
**DIF: L3**  
**REF: p. 117**  
**OBJ: 4.5.1 Discuss the factors that affect aquatic ecosystems.**  
**STA: SC.912.L.17.2 | SC.912.L.17.3**  
**TOP: Foundation Edition**  
**MSC: synthesis**

70. **ANS: A**  
**PTS: 1**  
**DIF: L1**  
**REF: p. 119**  
**OBJ: 4.5.3 Describe the importance of estuaries.**  
**STA: SC.912.L.17.2 | SC.912.L.17.3**  
**TOP: Foundation Edition**  
**MSC: knowledge**

71. **ANS: A**  
**PTS: 1**  
**DIF: L2**  
**REF: p. 119**  
**OBJ: 4.5.3 Describe the importance of estuaries.**  
**STA: SC.912.L.17.2 | SC.912.L.17.3**  
**TOP: Foundation Edition**  
**MSC: comprehension**

72. **ANS: D**  
**PTS: 1**  
**DIF: L2**  
**REF: p. 119**  
**OBJ: 4.5.3 Describe the importance of estuaries.**  
**STA: SC.912.L.17.2 | SC.912.L.17.3**  
**TOP: Foundation Edition**  
**MSC: comprehension**

73. **ANS: B**  
**PTS: 1**  
**DIF: L1**  
**REF: p. 121**  
**OBJ: 4.5.4 Describe and compare the distinct ocean zones that make up marine ecosystems.**  
**STA: SC.912.L.17.2 | SC.912.L.17.3**  
**TOP: Foundation Edition**  
**MSC: knowledge**

74. **ANS: C**  
**PTS: 1**  
**DIF: L2**  
**REF: p. 121**  
**OBJ: 4.5.4 Describe and compare the distinct ocean zones that make up marine ecosystems.**  
**STA: SC.912.L.17.2 | SC.912.L.17.3**  
**TOP: Foundation Edition**  
**MSC: comprehension**

75. **ANS: B**  
**PTS: 1**  
**DIF: L2**  
**REF: p. 131**  
**OBJ: 5.1.1 List the characteristics used to describe a population.**  
**STA: SC.912.L.17.1**  
**TOP: Foundation Edition**  
**MSC: knowledge**

76. **ANS: D**  
**PTS: 1**  
**DIF: L2**  
**REF: p. 131**  
**OBJ: 5.1.1 List the characteristics used to describe a population.**  
**STA: SC.912.L.17.1**  
**TOP: Foundation Edition**  
**MSC: application**

77. **ANS: B**  
**PTS: 1**  
**DIF: L2**  
**REF: p. 131**  
**OBJ: 5.1.1 List the characteristics used to describe a population.**  
**STA: SC.912.L.17.1**  
**TOP: Foundation Edition**  
**MSC: comprehension**

78. **ANS: C**  
**PTS: 1**  
**DIF: L3**  
**REF: p. 131**  
**OBJ: 5.1.1 List the characteristics used to describe a population.**  
**STA: SC.912.L.17.1**  
**MSC: application**
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<tr>
<td>79. ANS: A   PTS: 1   DIF: L2   REF: p. 131</td>
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<tr>
<td>OBJ: 5.1.1 List the characteristics used to describe a population.</td>
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<td>STA: SC.912.L.17.1   TOP: Foundation Edition</td>
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<td>MSC: analysis</td>
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<td>80. ANS: D   PTS: 1   DIF: L1   REF: p. 132</td>
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<tr>
<td>OBJ: 5.1.2 Identify factors that affect population growth.</td>
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<td>STA: SC.912.L.17.5   TOP: Foundation Edition   MSC: knowledge</td>
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<td>81. ANS: A   PTS: 1   DIF: L1   REF: p. 132</td>
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<td>STA: SC.912.L.17.5   TOP: Foundation Edition</td>
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<td>82. ANS: D   PTS: 1   DIF: L2   REF: p. 132</td>
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<td>OBJ: 5.1.2 Identify factors that affect population growth.</td>
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<td>STA: SC.912.L.17.5   TOP: Foundation Edition   MSC: comprehension</td>
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<td>83. ANS: C   PTS: 1   DIF: L3   REF: p. 132</td>
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<td>OBJ: 5.1.2 Identify factors that affect population growth.</td>
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<td>STA: SC.912.L.17.5   TOP: Foundation Edition</td>
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<td>84. ANS: C   PTS: 1   DIF: L2   REF: p. 132</td>
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<td>85. ANS: D   PTS: 1   DIF: L2   REF: p. 133</td>
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<td>OBJ: 5.1.3 Describe exponential growth.</td>
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<td>STA: SC.912.N.1.1.6</td>
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<td>MSC: application</td>
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<td>86. ANS: A   PTS: 1   DIF: L2   REF: p. 133</td>
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<td>OBJ: 5.1.3 Describe exponential growth.</td>
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<td>STA: SC.912.N.1.1.6</td>
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<td>87. ANS: A   PTS: 1   DIF: L2   REF: p. 133</td>
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<td>OBJ: 5.1.3 Describe exponential growth.</td>
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<td>STA: SC.912.N.1.1.6</td>
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<td>88. ANS: C   PTS: 1   DIF: L1   REF: p. 132</td>
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<td>89. ANS: D   PTS: 1   DIF: L3   REF: p. 132</td>
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<td>90. ANS: A   PTS: 1   DIF: L1   REF: p. 134</td>
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<td>OBJ: 5.1.4 Describe logistic growth.</td>
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<td>STA: SC.912.N.1.1.6</td>
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<td>91. ANS: C   PTS: 1   DIF: L2   REF: p. 135</td>
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<td>OBJ: 5.1.4 Describe logistic growth.</td>
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<td>STA: SC.912.N.1.1.6</td>
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<td>OBJ: 5.1.4 Describe logistic growth.</td>
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<td>STA: SC.912.N.1.1.6</td>
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<td>93. ANS: C   PTS: 1   DIF: L2   REF: p. 134</td>
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<td>OBJ: 5.1.4 Describe logistic growth.</td>
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<td>STA: SC.912.N.1.1.6</td>
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94. **ANS:** A  
**PTS:** 1  
**DIF:** L3  
**REF:** p. 134 | p. 135  
**OBJ:** 5.1.4 Describe logistic growth.  
**STA:** SC.912.N.1.I.6 | SC.912.L.17.5  
**MSC:** analysis

95. **ANS:** C  
**PTS:** 1  
**DIF:** L1  
**REF:** p. 137  
**OBJ:** 5.2.1 Identify factors that determine carrying capacity.  
**STA:** SC.912.L.17.5  
**TOP:** Foundation Edition  
**MSC:** knowledge

96. **ANS:** C  
**PTS:** 1  
**DIF:** L2  
**REF:** p. 138 | p. 140  
**OBJ:** 5.2.1 Identify factors that determine carrying capacity.  
**STA:** SC.912.L.17.5  
**TOP:** Foundation Edition  
**MSC:** application

97. **ANS:** A  
**PTS:** 1  
**DIF:** L2  
**REF:** p. 138  
**OBJ:** 5.2.1 Identify factors that determine carrying capacity.  
**STA:** SC.912.L.17.5  
**TOP:** Foundation Edition  
**MSC:** analysis

98. **ANS:** A  
**PTS:** 1  
**DIF:** L2  
**REF:** p. 140  
**OBJ:** 5.2.1 Identify factors that determine carrying capacity.  
**STA:** SC.912.L.17.5  
**TOP:** Foundation Edition  
**MSC:** comprehension

99. **ANS:** A  
**PTS:** 1  
**DIF:** L3  
**REF:** p. 137  
**OBJ:** 5.2.1 Identify factors that determine carrying capacity.  
**STA:** SC.912.L.17.5  
**MSC:** analysis

100. **ANS:** C  
**PTS:** 1  
**DIF:** L2  
**REF:** p. 138  
**OBJ:** 5.2.2 Identify the limiting factors that depend on population density.  
**STA:** SC.912.N.1.I.6 | SC.912.L.17.5 | SC.912.L.17.6  
**MSC:** evaluation

101. **ANS:** B  
**PTS:** 1  
**DIF:** L1  
**REF:** p. 138 | p. 139 | p. 140  
**OBJ:** 5.2.2 Identify the limiting factors that depend on population density.  
**STA:** SC.912.N.1.I.6 | SC.912.L.17.5 | SC.912.L.17.6  
**TOP:** Foundation Edition  
**MSC:** knowledge

102. **ANS:** A  
**PTS:** 1  
**DIF:** L2  
**REF:** p. 138  
**OBJ:** 5.2.2 Identify the limiting factors that depend on population density.  
**STA:** SC.912.N.1.I.6 | SC.912.L.17.5 | SC.912.L.17.6  
**MSC:** application

103. **ANS:** D  
**PTS:** 1  
**DIF:** L2  
**REF:** p. 140 | p. 141  
**OBJ:** 5.2.2 Identify the limiting factors that depend on population density.  
**STA:** SC.912.N.1.I.6 | SC.912.L.17.5 | SC.912.L.17.6  
**MSC:** knowledge

104. **ANS:** A  
**PTS:** 1  
**DIF:** L2  
**REF:** p. 140  
**OBJ:** 5.2.2 Identify the limiting factors that depend on population density.  
**STA:** SC.912.N.1.I.6 | SC.912.L.17.5 | SC.912.L.17.6  
**MSC:** analysis

105. **ANS:** A  
**PTS:** 1  
**DIF:** L2  
**REF:** p. 140  
**OBJ:** 5.2.3 Identify the limiting factors that do not depend on population density.  
**STA:** SC.912.L.17.5  
**TOP:** Foundation Edition  
**MSC:** application

106. **ANS:** C  
**PTS:** 1  
**DIF:** L3  
**REF:** p. 140  
**OBJ:** 5.2.3 Identify the limiting factors that do not depend on population density.  
**STA:** SC.912.L.17.5  
**MSC:** analysis

107. **ANS:** B  
**PTS:** 1  
**DIF:** L1  
**REF:** p. 140  
**OBJ:** 5.2.3 Identify the limiting factors that do not depend on population density.  
**STA:** SC.912.L.17.5  
**TOP:** Foundation Edition  
**MSC:** comprehension

108. **ANS:** C  
**PTS:** 1  
**DIF:** L2  
**REF:** p. 140 | p. 141  
**OBJ:** 5.2.3 Identify the limiting factors that do not depend on population density.  
**STA:** SC.912.L.17.5  
**MSC:** analysis
OBJ: 5.2.3 Identify the limiting factors that do not depend on population density.
STA: SC.912.L.17.5  MSC: synthesis

110. ANS: C  PTS: 1  DIF: L1  REF: p. 143
OBJ: 5.3.1 Discuss the trend of human population growth.
STA: SC.912.L.17.5  MSC: knowledge
TOP: Foundation Edition

111. ANS: B  PTS: 1  DIF: L2  REF: p. 144
OBJ: 5.3.1 Discuss the trend of human population growth.
STA: SC.912.L.17.5  MSC: comprehension
TOP: Foundation Edition

112. ANS: C  PTS: 1  DIF: L1  REF: p. 143
OBJ: 5.3.1 Discuss the trend of human population growth.
STA: SC.912.L.17.5  MSC: knowledge
TOP: Foundation Edition

113. ANS: A  PTS: 1  DIF: L2  REF: p. 144
OBJ: 5.3.1 Discuss the trend of human population growth.
STA: SC.912.L.17.5  MSC: analysis
TOP: Foundation Edition

114. ANS: D  PTS: 1  DIF: L2  REF: p. 142 | p. 143
OBJ: 5.3.1 Discuss the trend of human population growth.
STA: SC.912.L.17.5  MSC: comprehension
TOP: Foundation Edition

115. ANS: B  PTS: 1  DIF: L1  REF: p. 145
OBJ: 5.3.2 Explain why population growth rates differ in countries throughout the world.
STA: SC.912.N.1.1.6 | SC.912.L.17.5 | SC.912.L.17.18  MSC: knowledge
TOP: Foundation Edition

116. ANS: B  PTS: 1  DIF: L2  REF: p. 144
OBJ: 5.3.2 Explain why population growth rates differ in countries throughout the world.
STA: SC.912.N.1.1.6 | SC.912.L.17.5 | SC.912.L.17.18  MSC: application
TOP: Foundation Edition

117. ANS: A  PTS: 1  DIF: L3  REF: p. 144
OBJ: 5.3.2 Explain why population growth rates differ in countries throughout the world.
STA: SC.912.N.1.1.6 | SC.912.L.17.5 | SC.912.L.17.18  MSC: synthesis

118. ANS: B  PTS: 1  DIF: L2  REF: p. 145
OBJ: 5.3.2 Explain why population growth rates differ in countries throughout the world.
STA: SC.912.N.1.1.6 | SC.912.L.17.5 | SC.912.L.17.18  MSC: analysis
TOP: Foundation Edition

119. ANS: B  PTS: 1  DIF: L2  REF: p. 144
OBJ: 5.3.2 Explain why population growth rates differ in countries throughout the world.
STA: SC.912.N.1.1.6 | SC.912.L.17.5 | SC.912.L.17.18  MSC: application
TOP: Foundation Edition

120. ANS: A  PTS: 1  DIF: L2  REF: p. 155
OBJ: 6.1.1 Describe human activities that can affect the biosphere.
STA: SC.912.L.17.16 | SC.912.L.17.18  MSC: analysis
TOP: Foundation Edition

121. ANS: A  PTS: 1  DIF: L1  REF: p. 154
OBJ: 6.1.1 Describe human activities that can affect the biosphere.
STA: SC.912.L.17.16 | SC.912.L.17.18  MSC: knowledge
TOP: Foundation Edition
122. ANS: A
OBJ: 6.1.1 Describe human activities that can affect the biosphere.
STA: SC.912.L.17.16 | SC.912.L.17.18
MSC: comprehension

123. ANS: B
OBJ: 6.1.1 Describe human activities that can affect the biosphere.
STA: SC.912.L.17.16 | SC.912.L.17.18
MSC: synthesis

124. ANS: C
OBJ: 6.1.1 Describe human activities that can affect the biosphere.
STA: SC.912.L.17.16 | SC.912.L.17.18
MSC: analysis

125. ANS: D
OBJ: 6.1.2 Describe the relationship between resource use and sustainable development.
STA: SC.912.L.17.11 | SC.912.L.17.12 | SC.912.L.17.19
MSC: comprehension

126. ANS: D
OBJ: 6.1.2 Describe the relationship between resource use and sustainable development.
STA: SC.912.L.17.11 | SC.912.L.17.12 | SC.912.L.17.19
MSC: synthesis

127. ANS: B
OBJ: 6.1.2 Describe the relationship between resource use and sustainable development.
STA: SC.912.L.17.11 | SC.912.L.17.12 | SC.912.L.17.19
MSC: comprehension

128. ANS: D
OBJ: 6.1.2 Describe the relationship between resource use and sustainable development.
STA: SC.912.L.17.11 | SC.912.L.17.12 | SC.912.L.17.19
MSC: comprehension

129. ANS: A
OBJ: 6.1.2 Describe the relationship between resource use and sustainable development.
STA: SC.912.L.17.11 | SC.912.L.17.12 | SC.912.L.17.19
MSC: application

130. ANS: A
OBJ: 6.2.1 Describe how human activities affect soil and land.
STA: SC.912.L.17.12 | SC.912.L.17.16 | SC.912.L.17.17
MSC: evaluation

131. ANS: D
OBJ: 6.2.1 Describe how human activities affect soil and land.
STA: SC.912.L.17.12 | SC.912.L.17.16 | SC.912.L.17.17
MSC: application

132. ANS: A
OBJ: 6.2.1 Describe how human activities affect soil and land.
STA: SC.912.L.17.12 | SC.912.L.17.16 | SC.912.L.17.17
MSC: comprehension

133. ANS: B
OBJ: 6.2.1 Describe how human activities affect soil and land.
STA: SC.912.L.17.12 | SC.912.L.17.16 | SC.912.L.17.17
MSC: comprehension

134. ANS: B
OBJ: 6.2.1 Describe how human activities affect soil and land.
STA: SC.912.L.17.12 | SC.912.L.17.16 | SC.912.L.17.17
MSC: knowledge
135. ANS: C  PTS: 1  DIF: L2  REF: p. 162
OBJ: Describe how human activities affect water resources.
MSC: comprehension

OBJ: Describe how human activities affect water resources.
MSC: application

137. ANS: B  PTS: 1  DIF: L1  REF: p. 161
OBJ: Describe how human activities affect water resources.
MSC: knowledge

138. ANS: C  PTS: 1  DIF: L1  REF: p. 161
OBJ: Describe how human activities affect water resources.
MSC: knowledge

139. ANS: B  PTS: 1  DIF: L3  REF: p. 161
OBJ: Describe how human activities affect water resources.

140. ANS: C  PTS: 1  DIF: L2  REF: p. 164
OBJ: Describe how human activities affect air resources.
STA: SC.912.L.17.12 | SC.912.L.17.16 | SC.912.L.17.17  MSC: knowledge

141. ANS: D  PTS: 1  DIF: L1  REF: p. 163
OBJ: Describe how human activities affect air resources.
MSC: knowledge

142. ANS: B  PTS: 1  DIF: L3  REF: p. 165
OBJ: Describe how human activities affect air resources.

143. ANS: D  PTS: 1  DIF: L2  REF: p. 164
OBJ: Describe how human activities affect air resources.
STA: SC.912.L.17.12 | SC.912.L.17.16 | SC.912.L.17.17  MSC: application

144. ANS: B  PTS: 1  DIF: L2  REF: p. 165
OBJ: Describe how human activities affect air resources.
MSC: application

145. ANS: D  PTS: 1  DIF: L1  REF: p. 166
OBJ: Define biodiversity and explain its value.
STA: SC.912.L.15.3  TOP: Foundation Edition
MSC: knowledge

146. ANS: B  PTS: 1  DIF: L2  REF: p. 166
OBJ: Define biodiversity and explain its value.
STA: SC.912.L.15.3  TOP: Foundation Edition
MSC: knowledge

147. ANS: C  PTS: 1  DIF: L2  REF: p. 167
OBJ: Define biodiversity and explain its value.
STA: SC.912.L.15.3  TOP: Foundation Edition
MSC: analysis

148. ANS: B  PTS: 1  DIF: L2  REF: p. 167
OBJ: Define biodiversity and explain its value.
STA: SC.912.L.15.3  TOP: Foundation Edition
MSC: comprehension
149. ANS: C  PTS: 1  DIF: L1  REF: p. 169
OBJ: 6.3.2 Identify current threats to biodiversity.
TOP: Foundation Edition  MSC: comprehension
STA: SC.912.L.17.8 | SC.912.L.17.16
OBJ: 6.3.2 Identify current threats to biodiversity.
TOP: Foundation Edition  MSC: comprehension
STA: SC.912.L.17.8 | SC.912.L.17.16
151. ANS: C  PTS: 1  DIF: L2  REF: p. 168
OBJ: 6.3.2 Identify current threats to biodiversity.
TOP: Foundation Edition  MSC: comprehension
STA: SC.912.L.17.8 | SC.912.L.17.16
152. ANS: B  PTS: 1  DIF: L2  REF: p. 168
OBJ: 6.3.2 Identify current threats to biodiversity.
TOP: Foundation Edition  MSC: application
STA: SC.912.L.17.8 | SC.912.L.17.16
153. ANS: C  PTS: 1  DIF: L1  REF: p. 171
OBJ: 6.3.3 Describe how biodiversity can be preserved.
TOP: Foundation Edition  MSC: knowledge
STA: SC.912.L.17.17
OBJ: 6.3.3 Describe how biodiversity can be preserved.
TOP: Foundation Edition  MSC: application
STA: SC.912.L.17.17
155. ANS: C  PTS: 1  DIF: L3  REF: p. 171
OBJ: 6.3.3 Describe how biodiversity can be preserved.
MSC: analysis
STA: SC.912.L.17.17
156. ANS: D  PTS: 1  DIF: L3  REF: p. 170
OBJ: 6.3.3 Describe how biodiversity can be preserved.
MSC: evaluation
STA: SC.912.L.17.17
157. ANS: D  PTS: 1  DIF: L2  REF: p. 173
OBJ: 6.4.1 Explain the concept of ecological footprint.
MSC: knowledge
STA: SC.912.L.17.13 | SC.912.L.17.20
158. ANS: B  PTS: 1  DIF: L1  REF: p. 173
OBJ: 6.4.1 Explain the concept of ecological footprint.
TOP: Foundation Edition  MSC: knowledge
STA: SC.912.L.17.13 | SC.912.L.17.20
159. ANS: D  PTS: 1  DIF: L2  REF: p. 174
OBJ: 6.4.1 Explain the concept of ecological footprint.
MSC: evaluation
STA: SC.912.L.17.13 | SC.912.L.17.20
160. ANS: C  PTS: 1  DIF: L2  REF: p. 173
OBJ: 6.4.1 Explain the concept of ecological footprint.
TOP: Foundation Edition  MSC: comprehension
STA: SC.912.L.17.13 | SC.912.L.17.20
161. ANS: D  PTS: 1  DIF: L1  REF: p. 174
OBJ: 6.4.2 Identify the role of ecology in a sustainable future.
TOP: Foundation Edition  MSC: synthesis
STA: SC.912.L.17.12 | SC.912.L.17.13
162. ANS: C  PTS: 1  DIF: L3  REF: p. 174
OBJ: 6.4.2 Identify the role of ecology in a sustainable future.
MSC: comprehension
STA: SC.912.L.17.12 | SC.912.L.17.13
163. ANS: C  PTS: 1  DIF: L2  REF: p. 175
OBJ: 6.4.2 Identify the role of ecology in a sustainable future.
TOP: Foundation Edition  MSC: analysis
STA: SC.912.L.17.12 | SC.912.L.17.13
164. ANS: B  PTS: 1  DIF: L2  REF: p. 177
OBJ: 6.4.2 Identify the role of ecology in a sustainable future.
TOP: Foundation Edition  MSC: analysis
STA: SC.912.L.17.12 | SC.912.L.17.13