

## Life & Physical Science Final Exam 2016

### Modified True/False

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

1. The wastewater and wastes in it that are produced in homes are called sewage.
2. The amount of water on Earth remains constant because the total amounts of condensation and precipitation balance each other.
3. Sources of salt water on Earth include ice, rivers, lakes, and groundwater.
4. Water moves easily through impermeable materials.
5. Clouds form when water vapor in the atmosphere condenses into water droplets.
6. Glaciers form in cold places where less snow falls each year than melts.
7. In the United States, the major use of water is for irrigation, supplying water to cropland.
8. Groundwater is often obtained by drilling a well to reach above the water table.
9. During drinking water treatment, unwanted particles form clumps known as flocs in the process of filtration.
10. Most of Earth's water is found in lakes and rivers.
11. The most common extrusive rock is basalt.
12. A metamorphic rock that has grains arranged in bands is said to be nonfoliated.
13. The small particles of rock or the remains of living things that make up sedimentary rocks are called cement.
14. Each major group of rocks follows only one pathway in the rock cycle.
15. High pressure can change an igneous rock into a sedimentary rock.
16. Granite is an igneous rock.
17. Igneous rocks that formed beneath Earth's surface are extrusive rocks.
18. Particles of minerals called grains give a rock its texture.
19. The process that lays down sediment in a new location is erosion.
20. A valley glacier spreads out over a large island or continent.
21. A large stream that flows across a flood plain is called a gully.
22. The rate of chemical weathering is faster in hot, wet climates than in cold, dry climates.
23. Creep is very slow movement of sediment down a slope.
24. After chemical weathering, the composition of the rock is the same as the original rock.
25. As a river's slope increases, the power of the river to cause erosion usually decreases.
26. The stronger the wind, the larger the particles it erodes.
27. The type of weathering that occurs due to heating and cooling is mechanical weathering.
28. The movement of rock particles by ice, wind, water, or gravity is called weathering.

## Multiple Choice

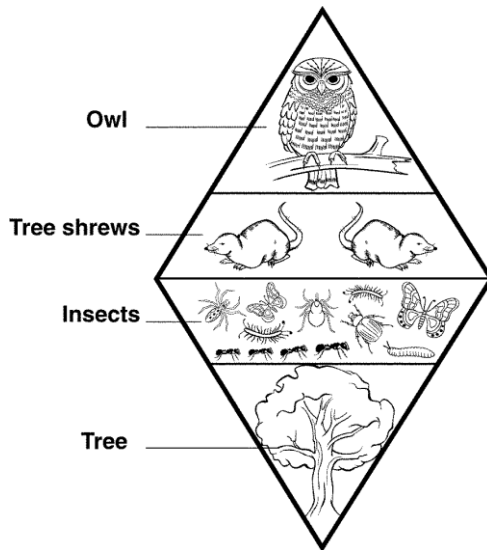
Identify the choice that best completes the statement or answers the question.

29. Runoff is rainfall that
  - a. evaporates immediately.
  - b. soaks into the soil.
  - c. flows over the ground surface.
  - d. falls directly into the ocean.
30. Pure water is neutral, meaning it is neither an acid nor a base. Pure water has a pH of
  - a. 0.
  - b. 14.
  - c. 7.
  - d. 10.
31. Materials that allow water to easily pass through them are
  - a. permeable.
  - b. impermeable.
  - c. saturated.
  - d. unsaturated
32. Many homes that are not connected to public sanitary sewers might dispose of sewage using a(n)
  - a. aquifer.
  - b. septic system.
  - c. reservoir.
  - d. well.
33. A water molecule is made up of
  - a. two hydrogen atoms bonded to an oxygen atom.
  - b. two hydrogen atoms bonded together.
  - c. two oxygen atoms bonded to a hydrogen atom.
  - d. two oxygen atoms bonded together.
34. Water that fills the cracks and spaces in underground soil and rock layers is called
  - a. salt water.
  - b. rainwater.
  - c. groundwater.
  - d. water vapor.
35. Which of the following are NOT a common source of drinking water?
  - a. glaciers
  - b. rivers
  - c. reservoirs
  - d. aquifers
36. The total amount of water on Earth
  - a. is increasing.
  - b. is fairly constant.
  - c. is decreasing.
  - d. depends on the weather.
37. The land area that supplies water to a river system is called a
  - a. watershed.
  - b. tributary.
  - c. divide.
  - d. stream.
38. Approximately what percentage of Earth's water is fresh water?
  - a. 97 percent
  - b. 71 percent
  - c. 30 percent
  - d. 3 percent
39. The process by which plants release water into the air is called
  - a. precipitation.
  - b. condensation.
  - c. evaporation.
  - d. transpiration.
40. Which of the following is a way to conserve water?
  - a. taking longer showers
  - b. reusing water in a factory to cool hot machinery
  - c. letting the water run while you brush your teeth
  - d. using open ditches to carry water for irrigation
41. Water that falls to Earth as rain, snow, sleet, or hail is called
  - a. condensation.
  - b. evaporation.
  - c. precipitation.
  - d. transpiration.
42. The gaseous form of water is called
  - a. rain.
  - b. snow.
  - c. salt water.
  - d. water vapor.
43. The pH of water is a measure of its
  - a. saltiness.
  - b. acidity.
  - c. color.
  - d. cloudiness.
44. Household wastewater and the wastes in it are called
  - a. sewage.
  - b. flocs.
  - c. sludge.
  - d. gray water.
45. The process by which a gas changes into a liquid is called
  - a. evaporation.
  - b. condensation.
  - c. melting.
  - d. freezing.
46. Hard water contains high levels of
  - a. calcium and magnesium.
  - b. Escherichia coli.
  - c. sewage.
  - d. soapsuds.

47. The first step in treating water from a river or lake is usually  
 a. chlorination.      b. coagulation.      c. concentration.      d. filtration.
48. Many large cities grew up on rivers or coasts because people used the water for  
 a. agriculture.      b. household uses.      c. transportation.      d. recreation.
49. A lake that stores water for human use is called a(n)  
 a. reservoir.      b. dam.      c. oxbow lake.      d. pond.
50. Irrigation is used to supply water for  
 a. agriculture.      b. industry.      c. transportation.      d. recreation.
51. The continuous process by which water moves through the living and nonliving parts of the environment is called the  
 a. hydrologic cycle.      c. condensation cycle.  
 b. evaporation cycle.      d. precipitation cycle.
52. A well in which groundwater rises because of pressure is called a(n)  
 a. artesian well.      b. water table.      c. geyser.      d. dry well.
53. Temperatures on Earth remain within a suitable range for life because of the  
 a. unequal heating of Earth's surface.  
 b. loss of heat to space.  
 c. radiation of sunlight back into the atmosphere.  
 d. greenhouse effect.
54. Each of the following is an abiotic factor in the environment EXCEPT  
 a. plant life.      c. rainfall.  
 b. soil type.      d. temperature.
55. Which factor can influence continual change in an ecosystem?  
 a. further disturbances      c. introduction of nonnative species  
 b. long-term climate changes      d. all of the above
56. The loss of heat to space is slowed by  
 a. radiation entering the atmosphere.      c. solar energy.  
 b. atmospheric gases.      d. the biosphere.
57. An organism's niche is  
 a. the way the organism uses the range of physical and biological conditions in which it lives.  
 b. all the physical 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.
58. 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.
59. Cool air over the poles will  
 a. rise.      c. absorb heat from the equator.  
 b. sink.      d. flow parallel to Earth's surface.
60. Primary succession can begin after  
 a. a forest fire.      c. farmland is abandoned.  
 b. a lava flow.      d. a severe storm.
61. Different species can share the same habitat, but competition among them is reduced if they  
 a. reproduce at different times.      c. increase their populations.  
 b. eat less.      d. occupy different niches.

62. Which is NOT an adaptation that organisms have for living in flowing water?
- hooks
  - tentacles
  - streamlined bodies
  - suckers
63. An example of a place with a microclimate is
- a mountain range capped with ice.
  - a forested park in a desert city.
  - an orchid growing in a rain forest.
  - coniferous trees in a temperate forest.
64. Aquatic ecosystems are classified by all of the following EXCEPT
- depth and flow of the water.
  - organisms that live there.
  - temperature of the water.
  - chemistry of the water.
65. Symbiosis in which both species benefit is called
- commensalism.
  - mutualism.
  - predation.
  - parasitism.
66. The series of predictable changes that occur in a community over time is called
- population growth.
  - ecological succession.
  - climax community.
  - climate change.
67. Earth has three main climate zones because of the differences in latitude and
- amount of solar energy received.
  - angle of heating.
  - ocean currents.
  - prevailing winds.
68. An interaction in which one organism captures and feeds on another organism is called
- competition.
  - symbiosis.
  - mutualism.
  - predation.
69. Several species of warblers can live in the same spruce tree ONLY because they
- have different habitats within the tree.
  - eat different foods within the tree.
  - occupy different niches within the tree.
  - can find different temperatures within the tree.
70. Ponds and lakes are
- wetlands.
  - estuaries.
  - standing-water ecosystems.
  - flowing-water ecosystems.
71. The average year-after-year conditions of temperature and precipitation in a particular region is the region's
- weather.
  - latitude.
  - ecosystem.
  - climate.
72. The unequal heating of Earth's surface
- drives wind and ocean currents.
  - causes winds that transport heat throughout the biosphere.
  - has important effects on Earth's climate regions.
  - all of the above
73. The symbiotic relationship between a flower and the insect that feeds on its nectar is an example of
- mutualism because the flower provides the insect with food, and the insect pollinates the flower.
  - parasitism because the insect lives off the nectar from the flower.
  - commensalism because the insect doesn't harm the flower, and the flower doesn't benefit from the relationship.
  - predation because the insect feeds on the flower.
74. Climate conditions in a small area that differ from the climate of the surrounding area are called
- natural features.
  - microclimates.
  - biomes.
  - ecosystems.
75. Which two biomes have the least amount of precipitation?
- tropical rain forest and temperate grassland

- b. tropical savanna and tropical dry forest
  - c. tundra and desert
  - d. boreal forest and temperate woodland and shrubland
76. Climate is a global factor that produces
- a. Earth's unique ocean and atmosphere.
  - b. the shape and elevation of landmasses.
  - c. a wide range of environmental conditions that shapes communities.
  - d. solar energy within the atmosphere.
77. 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
78. The chemistry of aquatic ecosystems is determined by the
- a. amount of salts, nutrients, and oxygen dissolved in the water.
  - b. number of other organisms present in the water.
  - c. amount of rainfall the water receives.
  - d. biotic and abiotic factors in the water.
79. The tendency for warm air to rise and cool air to sink results in
- a. global wind patterns.
  - b. ocean upwelling.
  - c. unequal heat distribution.
  - d. climate zones.
80. What is one difference between primary and secondary succession?
- a. Primary succession is slow, and secondary succession is rapid.
  - 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.
81. Which biome is characterized by very low temperatures, little precipitation, and permafrost?
- a. desert
  - b. temperate forest
  - c. tundra
  - d. tropical dry forest
82. 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.
83. 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 are grouped in populations, which make up communities.
84. What is the process by which bacteria convert nitrogen gas in the air to ammonia?
- a. nitrogen fixation
  - b. excretion
  - c. decomposition
  - d. denitrification
85. All the interconnected feeding relationships in an ecosystem make up a food
- a. interaction.
  - b. chain.
  - c. network.
  - d. web.



**Figure 3-2**

86. The trophic levels in Figure 3-2 illustrate
  - a. the relative amount of energy.
  - b. the amount of living organic matter.
  - c. the relative number of individual organisms.
  - d. that producers outnumber first-level consumers.
87. Which ecological inquiry method is an ecologist using when he or she enters an area periodically to count the population numbers of a certain species?
  - a. questioning
  - b. observing
  - c. experimenting
  - d. modeling
88. An organism that uses energy to produce its own food supply from inorganic compounds is called a(an)
  - a. heterotroph.
  - b. consumer.
  - c. detritivore.
  - d. autotroph.
89. Nitrogen fixation is carried out primarily by
  - a. humans.
  - b. plants.
  - c. bacteria.
  - d. consumers.
90. The simplest grouping of more than one kind of organism in the biosphere is a(an)
  - a. population.
  - b. community.
  - c. ecosystem.
  - d. species.
91. What is the original source of almost all the energy in most ecosystems?
  - a. carbohydrates
  - b. sunlight
  - c. water
  - d. carbon
92. All of the members of a particular species that live in the same area are called a(an)
  - a. biome.
  - b. population.
  - c. community.
  - d. ecosystem.
93. 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.
94. An organism that cannot make its own food is called a(an)
  - a. heterotroph.
  - b. chemotroph.
  - c. autotroph.
  - d. producer.
95. A snake that eats a frog that has eaten an insect that fed on a plant is a
  - a. first-level producer.
  - b. first-level consumer.
  - c. second-level producer.
  - d. third-level consumer.
96. What is the combined portions of Earth called in which all living things exist?
  - a. biome
  - b. community
  - c. ecosystem
  - d. biosphere
97. Carbon cycles through the biosphere in all of the following processes EXCEPT
  - a. photosynthesis.
  - b. transpiration.
  - c. respiration.
  - d. decomposition.

- b. transpiration. d. decomposition.
98. Organisms need nutrients in order to  
a. utilize hydrogen and oxygen. c. recycle chemical compounds.  
b. carry out essential life functions. d. carry out nitrogen fixation.
99. Which is most likely to be a limiting nutrient in a freshwater pond?  
a. phosphorus b. nitrogen c. carbon d. potassium
100. 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.
101. What animals eat both producers and consumers?  
a. herbivores b. omnivores c. chemotrophs d. autotrophs
102. Which of the following is NOT a basic method used by ecologists to study the living world?  
a. experimenting b. classifying c. modeling d. observing
103. The rate at which organic matter is created by producers in an ecosystem is called  
a. a limiting nutrient. c. an algal bloom.  
b. fertilization. d. primary productivity.
104. Which type of pyramid shows the amount of living tissue at each trophic level in an ecosystem?  
a. a numbers pyramid c. a biomass pyramid  
b. an energy pyramid d. a food pyramid
105. What is an organism that feeds only on plants called?  
a. carnivore b. herbivore c. omnivore d. detritivore
106. 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.
107. Organisms that obtain nutrients by breaking down dead and decaying plants and animals are called  
a. decomposers. b. omnivores. c. autotrophs. d. producers.
108. Which of the following organisms does NOT require sunlight to live?  
a. chemosynthetic bacteria c. trees  
b. algae d. photosynthetic bacteria
109. 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. c. stored as fat.  
b. stored as body tissue. d. eliminated as heat.
110. The algae at the beginning of the food chain in Figure 3-1 are  
a. consumers. b. decomposers. c. producers. d. heterotrophs.
111. Green plants are  
a. producers. b. consumers. c. herbivores. d. omnivores.
112. Which of the following is a density-independent factor?  
a. earthquake b. disease c. emigration d. parasitism
113. Which of the following is NOT one of the factors that play a role in population growth rate?  
a. immigration c. emigration  
b. death rate d. demography
114. Which of the following describes the largest number of individuals that an environment can support?  
a. carrying capacity. c. emigration.  
b. immigration. d. exponential growth.
115. Which would be least likely to be affected by a density-dependent limiting factor?

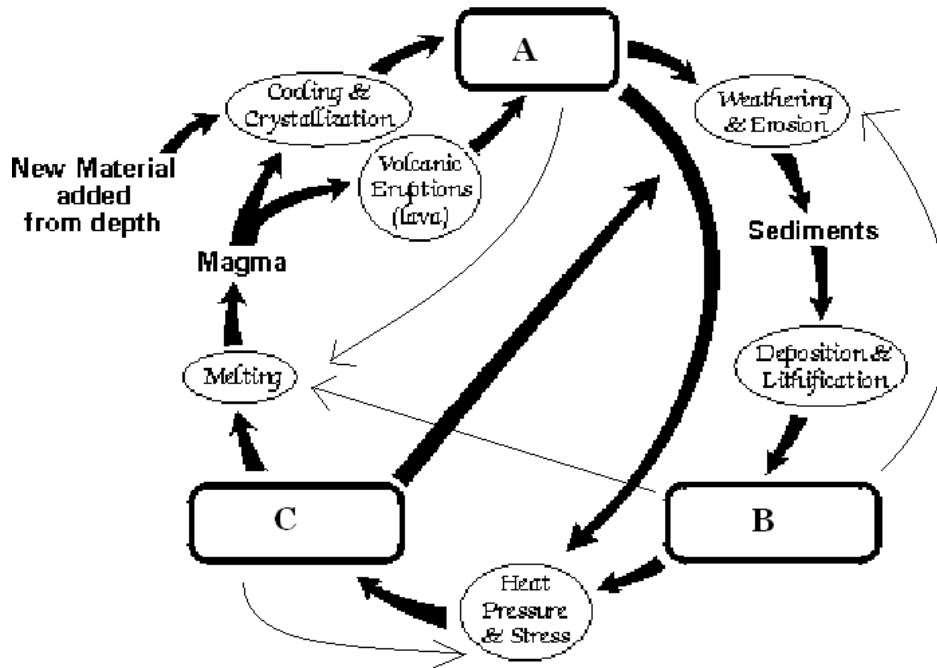
- a. a small, scattered population                      c. a large, dense population  
b. a population with a high birthrate                d. a population with a high immigration rate
116. Human population growth has slowed down in  
a. China.                      b. the United States.      c. India.                      d. Africa.
117. About 500 years ago, the world's population started  
a. decreasing.                      c. growing more rapidly.  
b. to reach carrying capacity.                      d. to level off.
118. Sea otters are important to the populations of  
a. kelp.                      c. killer whales.  
b. sea urchins.                      d. all of the above
119. In countries like India, the human population is growing  
a. exponentially.                      c. logistically.  
b. transitionally.                      d. demographically.
120. Which country has not yet completed the demographic transition?  
a. United States      b. India                      c. Great Britain      d. Japan
121. When individuals in a population reproduce at a constant rate, it produces a growth pattern called  
a. logistic growth.                      c. demographic growth.  
b. growth density.                      d. exponential growth.
122. Which will reduce competition within a species' population?  
a. fewer individuals                      c. fewer resources  
b. higher birthrate                      d. higher population density
123. What can cause a population to grow?  
a. The birthrate becomes higher than the death rate.  
b. The birthrate stays the same, and the death rate increases.  
c. The birthrate becomes lower than the death rate.  
d. The birthrate and the death rate remain the same.
124. 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
125. Demographic transition is change from high birthrates and high death rates to  
a. exponential growth.                      c. a low birthrate and a high death rate.  
b. a low birthrate and a low death rate.                      d. indefinite growth.
126. If a population grows larger than the carrying capacity of the environment, the  
a. death rate may rise.                      c. population will grow faster.  
b. birthrate may rise.                      d. carrying capacity will change.
127. 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.                      c. has a steady growth rate.  
b. will double in 30 years.                      d. will decrease in 30 years.
128. Any factor in the environment that causes population growth to decrease is a  
a. carrying capacity.                      c. limiting factor.  
b. limiting nutrient.                      d. growth factor.
129. Demography is the scientific study of  
a. parasitism and disease.                      c. human populations.  
b. modernized countries.                      d. economic transitions.
130. One of the main characteristics of a population is its  
a. change over time.                      c. dynamics.  
b. geographic distribution.                      d. habitat.
131. What does the range of a population tell you that density does not?



- a. the number that live in an area                      c. the births per unit area  
b. the areas inhabited by a population                d. the deaths per unit area
132. As resources in a population become less available, population growth  
a. becomes negative.                                      c. reaches carrying capacity.  
b. increases slowly.                                        d. enters a phase of exponential growth.
133. Which are two ways a population can decrease in size?  
a. immigration and emigration                      c. decreased birthrate and emigration  
b. increased death rate and immigration            d. emigration and increased birthrate
134. Each of the following is a density-dependent limiting factor EXCEPT  
a. competition.                                            c. crowding.  
b. unusual weather.                                      d. disease.
135. The anticipated human population by the year 2050 may be about  
a. 7.8 billion.                      b. 9 billion.                      c. 9 trillion.                      d. 78 billion.
136. The various growth phases through which most populations go are represented by a(an)  
a. logistic growth curve.                              c. demographic curve.  
b. exponential growth curve.                        d. age-structure curve.
137. When the birthrate in a population becomes higher than the death rate, the population growth rate  
a. increases.                                              c. levels off.  
b. decreases.                                              d. decreases, then levels off.
138. 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
139. The movement of organisms into a given area from another area is called  
a. immigration.                                            c. population shift.  
b. emigration.                                              d. carrying capacity.
140. There are 150 Saguaro cacti plants per square kilometer in a certain area of Arizona desert. To which population characteristic does this information refer?  
a. growth rate                                              c. age structure  
b. geographic distribution                              d. population density
141. When individuals in a population reproduce at a constant rate, it produces a pattern of growth called  
a. logistic growth.                                        c. exponential growth.  
b. growth density.                                        d. carrying capacity.
142. A sedimentary rock made up of rounded fragments of other rocks is called  
a. shale.                                                      c. conglomerate.  
b. sandstone.                                                d. breccia.
143. Igneous rock that formed from lava that erupted onto Earth's surface is called  
a. extrusive rock.                                        c. clastic rock.  
b. intrusive rock.                                         d. sedimentary rock.
144. The sedimentary rock breccia is made up of  
a. jagged rock particles.                              c. plant remains.  
b. skeletons of ocean organisms.                    d. large crystals.
145. Where does most metamorphic rock form?  
a. at the surface                                            c. in sea waters  
b. just below the surface                              d. deep underground
146. The process by which sediment settles out of the water or wind carrying it is

- a. compaction.      b. cementation.      c. deposition.      d. erosion.

# The Rock Cycle



147. In the rock cycle where would metamorphic rocks form  
a. A                      b. B                      c. C                      d. All three
148. In the rock cycle where would sedimentary rocks form?  
a. A                      b. B                      c. C                      d. All three
149. In the rock cycle where would igneous rocks form  
a. A                      b. B                      c. C                      d. All three
150. Rock that forms from the cooling of magma below the surface or lava at the surface is called  
a. sedimentary rock.                      c. igneous rock.  
b. metamorphic rock.                      d. coarse-grained rock.
151. Geologists classify metamorphic rock according to  
a. the exterior color of the rock.  
b. the overall shape of the rock.  
c. the arrangement of the grains that make up the rock.  
d. the degree of hardness of the rock.
152. The most common intrusive rock is  
a. slate.                      b. granite.                      c. flint.                      d. quartzite.
153. Generally, a rock is made up of  
a. large crystals.                      c. small crystals.  
b. a mixture of minerals and other materials.                      d. a compound of several elements.
154. The process in which dissolved minerals crystallize and glue particles of sediment together is  
a. compaction.                      b. cementation.                      c. deposition.                      d. erosion.
155. In the rock cycle, what happens to magma and lava once they cool and harden?  
a. It becomes a metamorphic rock                      c. It becomes a sedimentary rock

- b. It becomes an igneous rock
  - d. It becomes magma
- 156. Igneous rock that cools very quickly when it forms may have a texture that is
  - a. smooth and shiny with no visible grain.
  - c. coarse grained.
  - b. multicolored and banded.
  - d. made up of jagged grains.
- 157. Heat and pressure deep beneath Earth's surface can change any rock into
  - a. chemical rock.
  - c. metamorphic rock.
  - b. gemstones
  - d. sedimentary rock.
- 158. The texture of an igneous rock that has large crystals scattered on a background of much smaller crystals is
  - a. fine grained.
  - c. metamorphic.
  - b. porphyritic.
  - d. coarse grained.
- 159. Which of the following is NOT one of the possible stages in the rock cycle?
  - a. volcanic activity
  - b. erosion
  - c. smelting
  - d. melting
- 160. When all the grains in a rock are large and easy to see, the rock is described as
  - a. porphyritic.
  - c. coarse grained.
  - b. fine grained.
  - d. nonbanded.
- 161. Chalk formed from sediments made of skeletons of microscopic living things in the ocean must be a(n)
  - a. clastic rock.
  - b. organic rock.
  - c. chemical rock.
  - d. igneous rock.
- 162. Metamorphic rocks that are nonfoliated
  - a. split into layers.
  - b. do not split into layers.
  - c. have mineral grains lined up in parallel layers.
  - d. usually have a rougher texture.
- 163. The texture of a metamorphic rock that has grains arranged in parallel layers is described as
  - a. foliated.
  - b. jagged grained.
  - c. coarse grained.
  - d. nonfoliated.
- 164. Which soil particle is the largest?
  - a. gravel
  - b. sand
  - c. silt
  - d. clay
- 165. The agent of mechanical weathering in which rock is worn away by the grinding action of other rock particles is called
  - a. erosion.
  - c. abrasion.
  - b. cracking and peeling.
  - d. ice wedging.
- 166. Wind carrying sand grains deposits the sand when the wind
  - a. speeds up.
  - c. slows down or hits an obstacle.
  - b. crosses a depression in the ground.
  - d. cools after nightfall.
- 167. A hot and wet climate causes weathering to take place
  - a. slowly.
  - c. unevenly.
  - b. at the same rate as when the climate is dry
  - d. rapidly.

and cool.
- 168. The growth of plant roots and animal activity may result in
  - a. mechanical weathering.
  - c. chemical weathering.
  - b. erosion.
  - d. abrasion.
- 169. Mass wasting is caused by
  - a. plucking and abrasion.
  - c. chemical weathering.
  - b. gravity.
  - d. erosion and deposition.
- 170. Landslides, mudflows, slump, and creep are all examples of
  - a. mechanical weathering.
  - c. mass movement.
  - b. runoff.
  - d. soil formation.
- 171. A rock containing iron becomes soft and crumbly and reddish-brown in color. It probably has been chemically weathered by

- a. water.
  - b. carbon dioxide.
  - c. oxygen.
  - d. acid rain.
172. The process by which wind removes surface materials is called
- a. abrasion.
  - b. plucking.
  - c. deflation.
  - d. inflation.
173. How would a fast-flowing river be most likely to move sand-sized particles of sediment?
- a. It would carry them suspended in the water.
  - b. It would dissolve them completely in solution.
  - c. It would push or slide them along the streambed.
  - d. It would deposit them along its banks.
174. Ice wedging causes mechanical weathering of rock by means of
- a. heating and cooling.
  - b. plant growth.
  - c. animal actions.
  - d. freezing and thawing of water.
175. Which soil particle is the smallest?
- a. sand
  - b. gravel
  - c. clay
  - d. silt
176. Particles of clay and silt eroded and deposited by the wind are called
- a. till.
  - b. loess.
  - c. dust.
  - d. sod.
177. What kind of weathering causes the mineral composition of rocks to change?
- a. mechanical weathering
  - b. permeable weathering
  - c. chemical weathering
  - d. general weathering
178. The process by which natural forces move weathered rock and soil from one place to another is called
- a. soil conservation.
  - b. deposition.
  - c. abrasion.
  - d. erosion.
179. Deltas are built up by
- a. deposition.
  - b. leaching.
  - c. abrasion.
  - d. erosion.
180. Glaciers can only form when
- a. there is an ice age.
  - b. there is a U-shaped valley in the mountains.
  - c. the amount of snow exceeds the amount of rain.
  - d. more snow falls than melts each year.
181. The most important factors in determining the rate of weathering are
- a. carbon dioxide and acid rain.
  - b. abrasion and acids from plant roots.
  - c. animal actions and oxygen.
  - d. rock type and climate.
182. The process in which sediment is laid down in a new location is called
- a. weathering.
  - b. deposition.
  - c. erosion.
  - d. mass movement.
183. A marble statue is left exposed to the weather. Within a few years, the details on the statue have begun to weather away. This weathering probably is caused by
- a. oxygen in the air.
  - b. carbonic acid in rainwater.
  - c. lichens.
  - d. abrasion.

### Completion

Complete each statement.

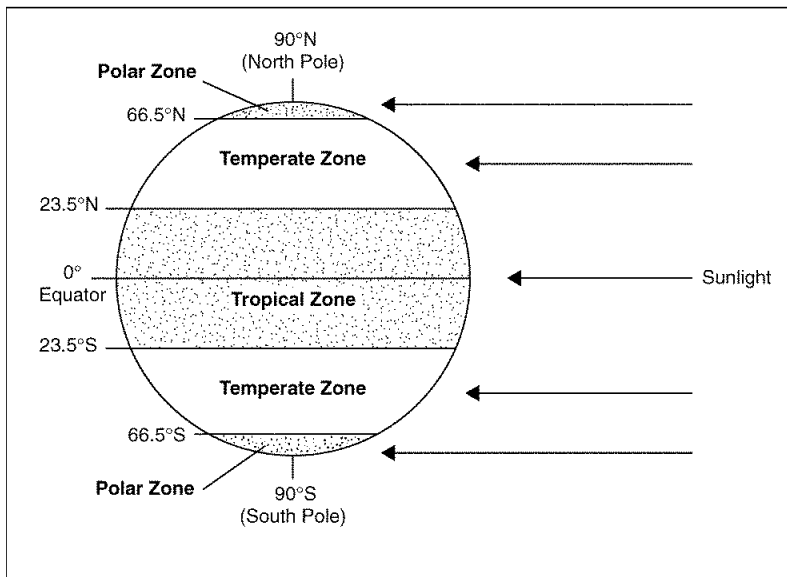
184. The \_\_\_\_\_ of water is a measurement of how acidic it is, on a scale of 0 to 14.
185. The level of two minerals—calcium and magnesium—in water is referred to as \_\_\_\_\_.
186. The first step in treating drinking water, called \_\_\_\_\_, involves passing water through a series of screens.
187. People do not have to use a pump to obtain water from a(n) \_\_\_\_\_ well.

188. The top of the saturated zone is called the \_\_\_\_\_.
189. The area of soil in which the pores are totally filled with water is called the \_\_\_\_\_ zone.
190. Most of Earth's fresh water is in the form of \_\_\_\_\_.
191. Emigration can cause a population to \_\_\_\_\_ in size.
192. Zero population growth is a characteristic of \_\_\_\_\_ growth.
193. One of the best known mechanisms of population control is the \_\_\_\_\_ relationship.
194. Social and \_\_\_\_\_ factors explain why some countries have high growth rates while other countries grow slowly or not at all.
195. Under ideal conditions with unlimited resources, a population will grow \_\_\_\_\_.
196. Resource shortages triggered by increasing population size are density-\_\_\_\_\_ limiting factors.
197. When an individual moves into a population from a different population, it is called \_\_\_\_\_.
198. Small, solid pieces of material that come from rocks or living things are called \_\_\_\_\_.
199. As layer upon layer of sediments are deposited, the process of \_\_\_\_\_ presses them together.
200. Sediment settles out of moving water by the process of \_\_\_\_\_.
201. A series of processes known as the \_\_\_\_\_ continuously changes rocks from one kind to another kind.
202. *Foliated* and *nonfoliated* are terms used to describe the texture of \_\_\_\_\_ rocks.
203. The texture of slate is said to be \_\_\_\_\_ because its mineral particles can be seen only with a microscope.
204. Metamorphic rocks such as marble and quartzite are said to be \_\_\_\_\_ because their mineral grains are not arranged in parallel layers or bands.
205. An igneous rock that cools in two stages—a slow stage forming large crystals and then a faster stage forming very small crystals—is said to have a \_\_\_\_\_ texture.
206. When mineral solutions evaporate, a type of sedimentary rock called a \_\_\_\_\_ rock can form.
207. The times in the past when continental glaciers covered large parts of Earth's land surface were the \_\_\_\_\_.
208. Wind and water are agents of \_\_\_\_\_ that move sediment from one location to another.
209. A kind of glacier called a(n) \_\_\_\_\_ forms when ice and snow build up in a mountain valley.
210. Sediment deposited where a river flows into an ocean or lake is called a(n) \_\_\_\_\_.
211. One cause of mechanical weathering is \_\_\_\_\_, or the wearing away of rock by rock particles.
212. A mass movement called \_\_\_\_\_ occurs when sediment suddenly slips downhill in one large mass.
213. Some plants produce acids that result in \_\_\_\_\_ weathering.
214. One agent of chemical weathering is \_\_\_\_\_, which combines with water to form carbonic acid.

215. The major agent of erosion that shapes Earth's land surface is moving \_\_\_\_\_.
216. A gully forms where \_\_\_\_\_, or tiny grooves in the soil that carry runoff, flow into one another.
217. Water and wind can \_\_\_\_\_ soil, or carry it away.

### Short Answer

218. Describe the greenhouse effect and explain how it maintains Earth's temperature range.
219. What abiotic factor determines the amount of light received by an aquatic ecosystem?
220. Explain how ocean currents originate and affect Earth's climates.



**Figure 4-1**

221. Using Figure 4-1 above, explain why average temperatures decrease with increasing distance from the equator.
222. Name and define the three main classes of symbiotic relationships. Give examples of each.
223. Describe the flow of energy among the following members of an ecosystem: decomposers, autotrophs, heterotrophs, and the sun.
224. Describe the three types of ecological pyramids.
225. Explain how a food web differs from a food chain? Cite at least two examples.
226. Describe and explain the two sources of energy that fuel life on Earth.
227. How can a demographer, or scientist who studies demography, predict how a population will change in the future?
228. What is a density-independent limiting factor? List and describe two examples.
229. How does emigration affect population size?
230. Sequence the historical events that contributed to the current human population growth.

231. Differentiate between exponential and logistic growth. Draw a graph for each.

### Essay

232. Explain how a sugar cube dissolves in water. Include the terms *molecule*, *polar*, *solvent*, and *solution* in your explanation.
233. Explain how water from a waterfall in South America could end up in your kitchen faucet.
234. Explain why Earth is often called the “water planet” and why it might be more accurate to call it the “saltwater planet.”
235. Explain what conservation is and give three examples of how you can conserve water.
236. If you were to choose a sample of drinking water what information about the would you need before deciding which one to drink?
237. How are rocks related to minerals? What is the difference in how rocks and minerals are classified?
238. Explain why metamorphic rock rarely forms at Earth’s surface.
239. Which group of rocks is most likely to contain fossils? Why?
240. Describe a pathway through the rock cycle in which magma becomes sedimentary rock.
241. Compare and contrast the formation of coarse-grained and fine-grained igneous rock and the texture of each.
242. Describe what geologists do to determine the mineral composition of a rock. Include the two terms associated with the compositions?
243. Explain how oxygen causes chemical weathering.
244. For hundreds of years, an ancient statue had been kept outdoors in a country with a dry, mild climate. A U.S. city bought the statue and placed it outdoors in a park. The city has hot, rainy summers, freezing winter temperatures, and air pollution from the burning of coal in a power plant. Predict how the city’s climate will affect the weathering of the statue.
245. Compare and contrast landslides and soil creep.
246. Describe how freezing and thawing of water causes mechanical weathering.
247. There are many factors that affect the rate at which materials can be weathered. Explain two of them and give examples.

**Life & Physical Science Final Exam 2016**  
**Answer Section**

**MODIFIED TRUE/FALSE**

1. T
2. F, evaporation
3. F, fresh water
4. F, permeable
5. T
6. F, more
7. T
8. F, below
9. F, coagulation
10. F, oceans
11. T
12. F, foliated
13. F, sediment
14. F, many pathways
15. F, metamorphic
16. T
17. F, intrusive
18. T
19. F, deposition
20. F, continental
21. F, river
22. T
23. T
24. F, different from
25. F, increases
26. T
27. T
28. F, erosion

**MULTIPLE CHOICE**

29. C
30. C
31. A
32. B
33. A
34. C
35. A
36. B
37. A



38. D
39. D
40. B
41. C
42. D
43. B
44. A
45. B
46. A
47. D
48. C
49. A
50. A
51. A
52. A
53. D
54. A
55. D
56. B
57. A
58. B
59. B
60. B
61. D
62. B
63. B
64. B
65. B
66. B
67. B
68. D
69. C
70. C
71. D
72. D
73. A
74. B
75. C
76. C
77. C
78. A
79. A
80. B
81. C
82. D
83. D
84. A

85. D
86. C
87. B
88. D
89. C
90. B
91. B
92. B
93. A
94. A
95. D
96. D
97. B
98. B
99. A
100. A
101. B
102. B
103. D
104. C
105. B
106. D
107. A
108. A
109. D
110. C
111. A
112. A
113. D
114. A
115. A
116. B
117. C
118. D
119. A
120. B
121. D
122. A
123. A
124. C
125. B
126. A
127. B
128. C
129. C
130. B

131. B
132. C
133. C
134. B
135. B
136. A
137. A
138. D
139. A
140. D
141. C
142. B
143. A
144. A
145. D
146. C
147. C
148. B
149. A
150. C
151. C
152. B
153. B
154. B
155. B
156. A
157. C
158. B
159. C
160. C
161. B
162. B
163. A
164. A
165. C
166. C
167. D
168. A
169. B
170. C
171. C
172. C
173. A
174. D
175. C
176. B
177. C

- 178. D
- 179. A
- 180. D
- 181. D
- 182. B
- 183. B

## COMPLETION

- 184. D, pH
- 185. A, hardness
- 186. A, filtration
- 187. C, artesian
- 188. E, water table
- 189. E, saturated
- 190. B, ice
- 191. C, decrease
- 192. D, logistic
- 193. C, predator-prey
- 194. E, economic
- 195. E, exponentially
- 196. A, dependent
- 197. B, immigration
- 198. C sediment
- 199. A compaction
- 200. D deposition
- 201. E rock cycle
- 202. B metamorphic
- 203. A fine-grained
- 204. B nonfoliated
- 205. C porphyritic
- 206. C chemical
- 207. ice ages
- 208. erosion
- 209. valley glacier
- 210. delta
- 211. abrasion
- 212. slump
- 213. chemical
- 214. carbon dioxide
- 215. water
- 216. rills
- 217. erode