

# Chapter 4 Drill

**Directions:** Each of the questions or incomplete statements below is followed by four suggested answers or completions. Select the one that is best in each case. For answers and explanations, see Chapter 13.

1. A seismograph is used to measure
  - (A) tectonic plate size
  - (B) the magnitude of an earthquake
  - (C) the temperature of volcanic materials
  - (D) the frequency of earthquakes in a region
2. The aurora borealis occurs in which of the following parts of the atmosphere?
  - (A) Troposphere
  - (B) Thermosphere
  - (C) Mesosphere
  - (D) Hydrosphere
3. Which of the following are the two most important factors in determining a habitat's climate?
  - (A) Temperature and wind speed
  - (B) Wind direction and precipitation
  - (C) Wind speed and rate of evaporation
  - (D) Temperature and precipitation
4. The atmosphere is warmed as gases such as water vapor and carbon dioxide absorb the infrared heat radiated from the Earth. This process is best described as
  - (A) ozone depletion
  - (B) the greenhouse effect
  - (C) biomagnification
  - (D) ionization
5. The hydrosphere includes all of the following EXCEPT
  - (A) watershed
  - (B) wetlands
  - (C) parent rock
  - (D) rivers
6. Imagine an area where there are cold waters, low oxygen levels, and bottom-dwelling fish. This description best fits the
  - (A) benthic zone
  - (B) littoral zone
  - (C) limnetic zone
  - (D) open water zone
7. The amount of Earth's surface that is covered by water is approximately
  - (A) 12 percent
  - (B) 36 percent
  - (C) 50 percent
  - (D) 75 percent
8. An area where salt and freshwater mix that has a very high level of productivity is correctly called
  - (A) the open ocean
  - (B) the abyssal zone
  - (C) the headwaters
  - (D) an estuary
9. Which of the following correctly describes the waters in an upwelling area?
  - (A) Cold and nutrient rich
  - (B) Warm and nutrient poor
  - (C) Cold and nutrient poor
  - (D) Heavily polluted by human waste
10. Which of the following best describes an unconfined aquifer? It is an area where
  - (A) water always comes to the surface
  - (B) water is free to flow in all directions
  - (C) water is held in place by impenetrable rocks
  - (D) pollutants enter the aquifer
11. Which of the following organisms is not likely to be found as a member of the detritus food web?
  - (A) Ants
  - (B) Earthworms
  - (C) Fungi
  - (D) Deer
12. Occurring primarily in coastal areas, the weather phenomenon that occurs when a low-pressure system develops as hot air rises from heated land is known as
  - (A) a hurricane
  - (B) a tornado
  - (C) a monsoon
  - (D) a typhoon

**Free-Response Question**

1. Scientists designed an experiment to learn about the functioning of the hydrologic cycle and the phosphorus cycle in a forest. Using two areas of the same size and geologic features, they cut all the trees down from one plot and did not disturb the other plot. They were able to accurately measure the amount of water that flowed out of the two plots as well as measure the amounts of phosphorus found in the runoff.
  - (a) **Describe** what the differences would be in the volume of water running off the two plots and give ONE reason why. Assume that the two areas received the same amounts of precipitation.
  - (b) **Describe** the differences in the levels of phosphate found in the runoff of the two plots. Assume that both plots started off with the same amount of phosphorus in the soil.
  - (c) **Describe** ONE negative effect that might occur in a stream that receives the runoff water and sediment.
  - (d) When a tropical rain forest is cut down and used as farmland, the fertility of the soil only lasts a few years. **Give** an explanation as to why there is little organic matter in rain forest soil and what would happen to that material after deforestation.