Water Pollution and Quality

Choose one answer per question. Circle A, B, C, or D.

1. On a diagram of a wastewater system, the label outfall points to the end of a pipe at a river. What does that label identify?
   A. The place where water is discharged to the river
   B. The high ground dividing two watersheds
   C. The upper surface of the groundwater
   D. A place where rain first falls on land

2. Rain carries lawn fertilizer from many properties toward a lake. What kind of source does that example illustrate?
   A. A single spring
   B. One isolated pipe discharge
   C. Nonpoint source
   D. A groundwater recharge well

3. A classroom container of muddy water sits undisturbed. Larger soil particles collect at the bottom. What process has taken place?
   A. Evaporation of every dissolved substance
   B. Sedimentation
   C. Dilution by adding water
   D. Dissolving all the soil

4. Which reading measures the oxygen present in the water that fish take up through their gills?
   A. Nitrate concentration
   B. Sediment depth
   C. Total stream discharge
   D. Dissolved oxygen

5. Which pair names nutrients that can promote excessive algal growth if too much enters a lake?
   A. Sand and gravel
   B. Nitrogen and phosphorus
   C. Helium and neon
   D. Sodium and chloride

6. On a sunny day in a pond with abundant algae, which process can add dissolved oxygen in daylight?

A. Photosynthesis by algae
B. Respiration by fish
C. Breakdown of dead leaves
D. Settling of sand

7. Two samples come from the same stream. One is visibly muddier after rain. Which change best accounts for that observation?

A. The local altitude increased during the storm.
B. The rain removed all particles from the water.
C. The stream changed back into groundwater.
D. Runoff carried more suspended sediment into the stream.

8. A fictional stream reads 8 turbidity units before rain, 33 during high flow, and 15 the next day. How much higher is the peak than the reading before rain?

A. 7 units
B. 18 units
C. 25 units
D. 41 units

9. A class wants to see whether nitrate changes across a stream reach near an inflow. Which design gives the strongest starting comparison?

A. Repeat paired upstream and downstream measurements at comparable times.
B. Measure only the deepest spot once.
C. Measure upstream in winter and downstream in summer exactly once.
D. Ask which site looks clearer and skip nitrate measurements.

10. Two freshwater samples are fully saturated with air at the same atmospheric pressure, but one is warmer. Which generally holds more dissolved oxygen?

A. Neither contains any oxygen
B. The warmer sample
C. Both always hold the same amount
D. The cooler sample

11. A filter removes suspended soil from a classroom water sample. The measured nitrate concentration stays the same. Which explanation best fits?

A. Nitrate cannot be present in clear water.
B. The filter changed all nitrate into suspended soil.
C. The nitrate is dissolved and passes through that particle filter.
D. Any nitrate reading must be a measurement of water color.

12. A fictional drain carries 20 liters of water per second with 3 milligrams of a dissolved substance per liter. What mass of that substance passes per second?

A. 23 milligrams
B. 60 milligrams
C. 17 milligrams
D. About 6.7 milligrams

13. A model combines 10 liters of water containing 4 milligrams of nitrate per liter with 30 liters containing no nitrate. If the mixture is uniform and none is removed, what is its nitrate concentration?

A. 4 milligrams per liter
B. 2 milligrams per liter
C. 3 milligrams per liter
D. 1 milligram per liter

14. A lake shows higher nutrient levels after rain on eight sampling days. Several streams enter the lake. Which finding does that evidence support by itself?

A. Higher nutrients were associated with the sampled rain events.
B. One particular stream caused every increase.
C. Every dry day of the year had the same nutrient reading.
D. All nearby land uses made identical contributions.

15. A stream gets warmer and receives more decomposing organic material at the same time. Dissolved oxygen falls. Which interpretation fits both changes?

A. The changes prove suspended sediment is the sole cause.
B. Warming adds more oxygen, and decomposition never affects it.
C. Warmer water can hold less oxygen, and decomposition can use more of it.
D. A decline in oxygen by itself proves which input changed first.