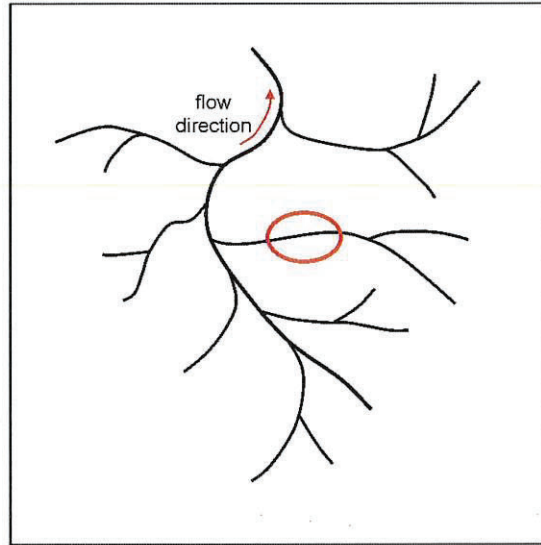


2026 Area IV Envirothon - Aquatics Test

1. Using the Strahler Stream Order Classification System, identify the Stream Order for the stream circled in red.

- a. First order
- b. Second order
- c. Third order
- d. Fourth order



2. An area of land that channels rainfall, snowmelt and runoff into a common body of water is called what?
- a. Water basin
  - b. Waterbody
  - c. Watershed
  - d. Water tray
3. Which of the following is NOT a characteristic of a healthy watershed?
- a. Mostly natural land cover
  - b. Diverse aquatic life
  - c. Low levels of suspended sediments in the stream
  - d. Large areas of impervious surfaces
4. Which process involves plants releasing water through their leaves?
- a. Sublimation
  - b. Transpiration
  - c. Evaporation
  - d. Condensation

5. Cyanobacteria, or “blue-green algae”, blooms are most often caused by an overabundance of which nutrient in freshwater systems?
  - a. Phosphorus
  - b. Nitrogen
  - c. Potassium
  - d. Iron
  
6. Pollution entering a waterbody from a large area of land, such as agricultural fields, is considered what type?
  - a. Point Source
  - b. Runoff
  - c. Non-Point Source
  - d. Erosion
  
7. Soil erosion can lead to sedimentation in streams, rivers and lakes. What is NOT a best management practice to prevent soil erosion on agricultural fields?
  - a. Planting a cover crop
  - b. Using no-till methods
  - c. Installing grassed waterways
  - d. Moldboard plowing in the Fall
  
8. Which of the following is NOT a pathway for oxygen to enter the water as dissolved oxygen?
  - a. Absorption from the atmosphere
  - b. Organic matter decomposition
  - c. Photosynthesis
  - d. Turbulence from current, wind, or waves
  
9. What important functions do wetlands provide for our environment?
  - a. Fish and wildlife habitat
  - b. Water quality improvement
  - c. Flood storage
  - d. All of the above

10. What are the three factors used to determine if an area is considered a wetland by US Army Corps of Engineers and other regulatory agencies?
- Soil, vegetation, and hydrology
  - Soil, vegetation, and fauna
  - Water quality, plant density, and hydrology
  - Ducks, cattails, and frogs
11. Vernal pools provide crucial habitat to a wide variety of macroinvertebrates and amphibians and are found throughout our forests in Ohio. What is a good definition of a vernal pool?
- Dominated by soft-stemmed plants like grasses, reeds, and sedges
  - Peat-accumulating wetlands that receive most of their water from rainfall and are characterized by acidic conditions and sphagnum moss
  - water in the spring Seasonal depressions that fill with and dry out in the summer.
  - Forests inundated with floodwater from nearby rivers and streams.
12. Biogeochemical cycling involves:
- the conversion of wetlands to uplands
  - the transportation of suspended sediments to wetlands
  - the biologic, physical, and chemical transformations of various nutrients within the biota, soils, water, and air.
  - a shift from the herbivore-carnivore food web to the detrital food web in estuaries.
13. Which of the following are NOT true about eutrophication?
- Eutrophication leads to overgrowth of algae
  - Decomposers consume dead algae
  - Eutrophication arises due to the lack of nutrients
  - Larger life forms, such as fish, suffocate to death due to the lack of oxygen

14. Which of the following statements best explains how a watershed influences the productivity of a lake?

- a. A watershed is the total area that drains into a lake, and land use within the watershed can regulate nutrient loading, thereby influencing primary productivity and potential eutrophication
- b. A watershed is the region of deepest water in a lake where thermal stratification determines nutrient cycling and primary productivity
- c. A watershed functions primarily as a physical barrier that prevents external nutrients from entering a lake, thereby stabilizing productivity
- d. A watershed effects lake productivity only through groundwater inputs and has little influence on surface nutrient transport

15. Of the following salamanders which one could you potentially see around a pond in the spring in Preble County?

- a. Long-tailed salamander



- b. Jefferson salamander



c. Spotted salamander



d. Eastern red-backed salamander



16. What is a factor that can limit cyanobacteria growth?

- a. Grazing by zooplankton
- b. High flow waters or increasing turbulence
- c. Shading from riparian trees
- d. All of the above

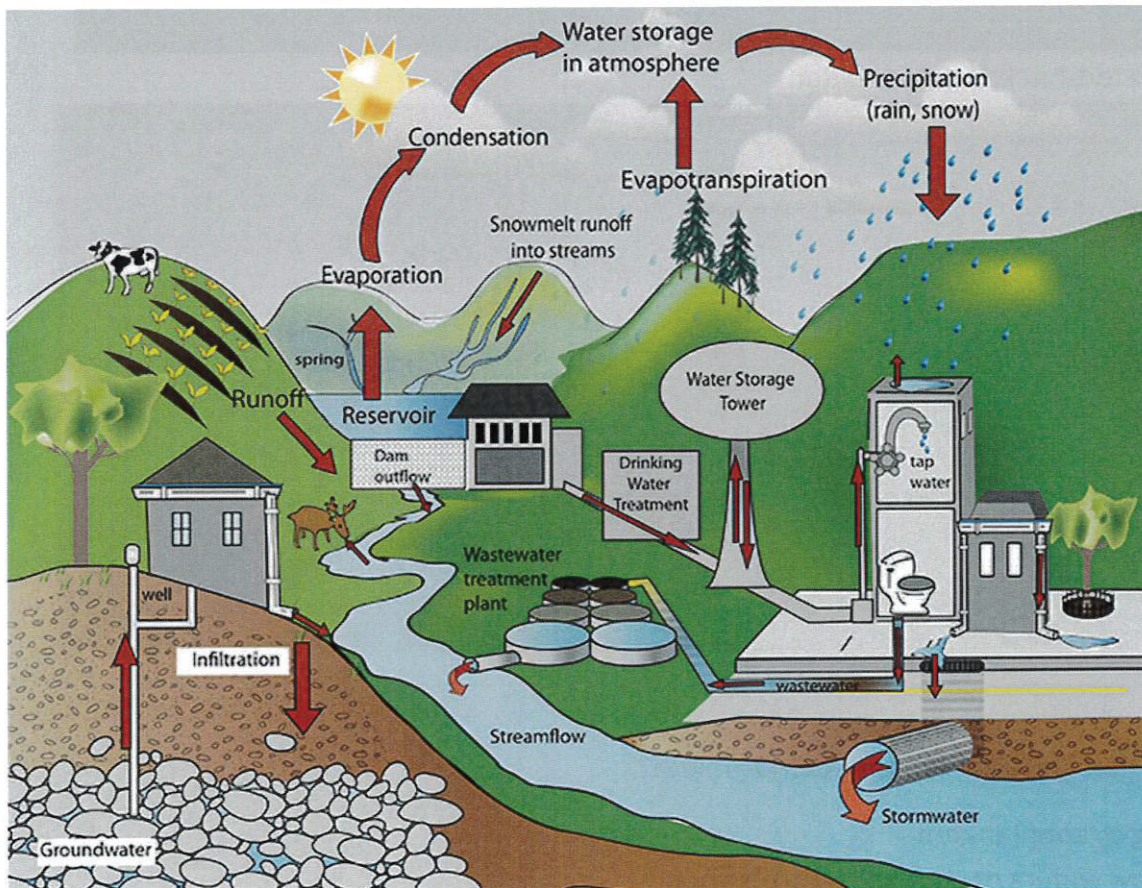
17. Which factor below is NOT a reason that headwater streams are degrading?

- a. Increase in agricultural drain tiles
- b. Removal of riparian vegetation
- c. Removal of woody debris within streams
- d. Increase in groundwater inputs

18. What is a pitfall of using the fish-IBI technique to assess ecological integrity in headwater streams in Ohio?

- a. Creek chubs are always the most abundant fish
- b. Low water in some streams produce low numbers of fish
- c. Stream water temperature is variable in headwater streams
- d. Electroshocking in small streams is not possible

19. Looking at the below water cycle diagram, which contributes the most to runoff?



Picture from Caryinstitute.org

- a. Evaporation
- b. Condensation
- c. Precipitation
- d. Infiltration

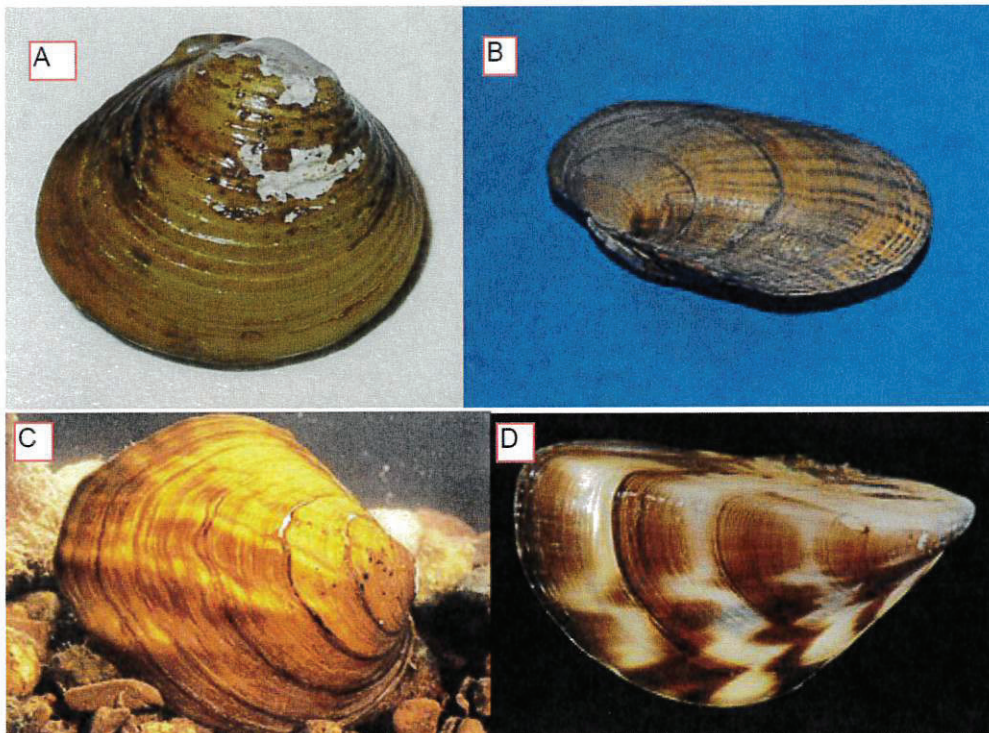
20. Also using the water cycle diagram, if a *Cladophora* bloom was present below the wastewater treatment plant what would that tell you about the discharge from the treatment plant?

- a. *Cladophora* was coming in from the treatment plant
- b. The turbidity was increasing from the treatment plant discharge
- c. Nutrients were increasing in the stream below the treatment plant
- d. The treatment plant is discharging above its mandated discharge allowance

21. Which industry sector accounts for 70% of water usage, globally?

- a. Agriculture
- b. Manufacturing
- c. Municipal
- d. Mining
- e.

22. Identify the zebra mussel from the images below: A



23. Which common practice is causing increased chloride levels in surface water?

- a. Spreading fertilizer on agricultural fields
- b. Grazing livestock near streams
- c. Applying salt and brine to roads during snowstorms
- d. Burning coal in power plants

24. This term refers to the bottom of a lake where organic sediment serves as a refuge and foraging area for fish, amphibians, birds, insects, and crustaceans:

- a. Littoral zone
- b. Benthic zone
- c. Limnetic zone
- d. Euphotic zone

25. Which of the following should boaters and anglers NOT do to prevent the spread of Aquatic Invasive Species?

- a. Inspect boats, trailers, and equipment
- b. Remove all attached aquatic plants and animals
- c. Drain all water from boats, vehicles, and equipment
- d. Move plants and live fish from one water body to another