

**2010 Area V Envirothon
Paint Creek State Park
AQUATICS ECOSTATION**

**Please use a pencil to complete your answer sheet.
DO NOT WRITE ON THIS TEST**

1. Which of the following will increase the dissolved oxygen (D.O.) of Paint Creek Lake on a sunny day in May?
 - A. Sandbar willow
 - B. Zooplankton
 - C. Weeping willow
 - D. Phytoplankton
 - E. "A" and "C"

2. Which of the following amphibians is totally aquatic throughout its entire lifespan?
 - A. Hellbender
 - B. Bull Frog
 - C. Spotted Salamander
 - D. Red-Spotted Newt
 - E. Cricket Frog

3. As spring becomes summer, the water in Paint Creek Lake will stratify as a result of temperature differences. By the end of summer, which water layer will contain most of the aquatic wildlife?
 - A. Epilimneon
 - B. Hypolimneon
 - C. Benthic
 - D. Pelagic
 - E. Riparian

4. What section of the stream below the dam would most likely contain these fish: mottled sculpin (*Cottus bairdi*), brindled madtom (*Noturus miurus*), rainbow darter (*Etheostoma caeruleum*)?
 - A. Riffle
 - B. Run
 - C. Pool
 - D. All three species are found equally in all three types of habitat
 - E. All three species are rare and not found in Paint Creek

5. During summer months, many Ohio lakes and ponds will have a layer of water depleted of oxygen. Which of the following terms means "depleted of oxygen"?
 - A. Hyperaerobic
 - B. Toxic
 - C. Hypobaric
 - D. Aerobic
 - E. Anoxic

6. What watershed are you standing in?
 - A. Sunfish creek
 - B. Paint creek
 - C. Brush creek
 - D. White oak creek

7. Which of the following terms is a measure of the amount of oxygen needed to decompose organic material in the water?
- A. Turbidity
 - B. Salinity
 - C. Biological Oxygen Demand
 - D. Bio-Reserves
 - E. Biomagnification
8. Many of the macroinvertebrates living in Paint Creek are benthic. What does “benthic” mean?
- A. Top-feeding
 - B. Open-water
 - C. Bottom-dwelling
 - D. Predatory
 - E. Plant-loving
9. Which of the following might happen if you apply too much fertilizer prior to a storm event?
- A. Soil erosion
 - B. Sediment build-up
 - C. Decompose boat-dock Supports
 - D. Increase algae growth
 - E. Decrease algae growth
10. What season of the year are fish growth rates usually the lowest for Ohio?
- A. Spring
 - B. Summer
 - C. Fall
 - D. Winter
 - E. Growth rates are relatively equal for all seasons
11. During extreme drought years some stream habitats in Ohio continue to have flowing water because...
- A. It is always raining somewhere in Ohio.
 - B. It is the responsibility of the ODNR-Division of Wildlife to pump groundwater from wells into local streams to maintain the flow of water for fish.
 - C. Some streams are not only fed naturally by surface water but also by groundwater.
 - D. There is always some water flowing south from Lake Erie, through central Ohio, to the Ohio River.
12. Which of the following macroinvertebrates is a Group I Indicator species?
- A. Pouch snail
 - B. Mayfly
 - C. Alderfly
 - D. Blackfly
 - E. Dragonfly
13. Water released from this lake by the U. S. Army Corps of Engineers has what effect?
- A. They create fishing opportunities when fish move upstream against the flow and aggregate near the water outlet.
 - B. They lower water levels in the lake creating an opportunity for future rain water to be retained, thereby reduce the potential for flooding downstream of the lake.
 - C. They provide opportunities for water related recreation such as kayaking downstream of the lake.
 - D. All of the above

14. Wetland mitigation means...
- A. Wetland destruction with no form of compensation.
 - B. Compensation for wetland losses resulting from land use changes such as urban or commercial development. The compensation results in wetland enhancement, restoration, and/or creation on suitable non-developed sites.
 - C. Changing shallow wetlands in to deep water ponds and lakes to reduce the amount of emergent vegetation.
 - D. Paying landowners to drain wetlands because they are a major source of groundwater contamination.
15. Road bridges and pedestrian bridges are often built over ravines to create stream crossings. This creates which of the following environmental hazards?
- A. Spills from a vehicle on or near the bridge can go directly into the water system and become a pollutant.
 - B. Road salt that enters the stream from a bridge and adjoining roadway can enter the water and have a negative impact on the aquatic ecosystem.
 - C. Both A and B
 - D. Neither A nor B
16. Some agricultural practices can have a positive effect on both groundwater quality and wildlife habitat. Which of the following statements is true?
- A. Cover crops that are planted as part of a crop rotation can also be used as food and cover by wildlife.
 - B. Increased insecticide use on farmland results in a good source of food for wildlife in the form of dead insects.
 - C. An increase in herbicide use on row crops improves food and cover for wildlife because weeds have no values to wildlife.
 - D. When a fescue pasture is converted to a mixed stand of native prairie grasses and forbs the biodiversity of the field decreases.
17. Soil erosion increases the amount of sediment, nutrients, pesticides, and herbicides entering waterways, which can negatively impact fisheries. All the following are measures that can be taken to reduce soil erosion except:
- A. Protective cover crops
 - B. Grassed waterways
 - C. Conventional tillage
 - D. Contour farming
18. This non-native, bottom-dwelling fish resembling a sculpin was introduced into the Great Lakes via the ballast water of ocean-going cargo ships coming from Europe.
- A. Zebra Fish
 - B. Sea Lamprey
 - C. Round Goby
 - D. Spiny Water Stickleback
 - E. Common Carp

19. *Spirogyra* helps increase the dissolved oxygen content of Paint Creek Lake. *Spirogyra* is which of the following?
- A. Cattail
 - B. Submergent vegetation
 - C. Zooplankton
 - D. Emergent Vegetation
 - E. Green Algae
20. A water-bearing subsurface layer of sand, gravel or rock is referred to as which of the following?
- A. Alluvium
 - B. Glacial till
 - C. Moraine
 - D. Aquifer
 - E. Clay
21. The aquatic macroinvertebrate shown here can be found in the swift flowing stream below the dam, but is unlikely to be here in the lake.
- A. Dragonfly nymph
 - B. Hellgrammite
 - C. Water Penny
 - D. Caddisfly Pupa
 - E. Whirligig beetle
22. The fish pictured here can be found in Paint Creek Lake and belongs to what family of fish?
- A. Sunfish (Centrarchidae)
 - B. Catfish (Ictaluridae)
 - C. True Basses (Moronidae)
 - D. Perch (Percidae)
 - E. Trout (Salmonidae)
23. What is the term for the area of the Pond where the sign post is located?
- A. Hypolimneon
 - B. Riparian zone
 - C. Benthic zone
 - D. Pelagic zone
 - E. Littoral zone
24. The aquatic insect seen here is a predator of other insects throughout most of its life cycle.
- A. Dragonfly nymph
 - B. Water spider
 - C. Water scorpion
 - D. Water boatman
 - E. Mayfly nymph
25. The sampling equipment shown here is used to measure which of the following water characteristics?
- A. Dissolved oxygen
 - B. Temperature
 - C. pH
 - D. Conductivity
 - E. Turbidity