

Aquatic Test Area IV 2019 Dennis Clement Ohio EPA

1. Identify the macroinvertebrate sampling device shown?

- A. Transparency tube
- B. Hester dandy
- C. Kick seine
- D. Secchi Disc

2. Water turbidity is the cloudiness of water caused by suspended materials that scatter light passing through the water column. What is the most accurate range of Total Suspended Solids (TSS) using the transparency tube, field sheet, and agitated sample provided?

- A. 1750.5-112.9 TSS(mg/l)
- B. 96.7-33.7 TSS(mg/l)
- C. 29.7-21.6 TSS(mg/l)
- D. 19.7-≤6.2 TSS(mg/l)

3. Using the transparency tube and agitated water sample provided. Would you have less total suspended solids and better water quality at?

- A. 36 inches
- B. 14 inches
- C. 21 inches
- D. 22 inches

4. Dissolved Oxygen is an important element in the aquatic lifecycle. Which term below means "depleted of oxygen"?

- A. Aerobic
- B. Anoxic
- C. Toxic
- D. Hyper aerobic

5. Excessively high and low pH can be detrimental to aquatic life. On the more acidic side of the scale fish can develop lesions. What pH range is needed for optimum aquatic life to thrive?

- A. 5.3 -7.0
- B. 4.5 – 5.5
- C. 6.5 – 8.5
- D. 7.0 - 9.0

6. Many sample surveys have been done and they tell us overwhelmingly that most people don't understand the difference between non-point and point sources of pollution. Which of the combinations below are both point sources of pollution?

- A. Concentrated Animal Feeding Operation and litter
- B. Flushing paint down a storm drain and lawn fertilizers
- C. Parking lot run-off and pet waste
- D. Industrial plant discharge pipe and hazardous spill

7. What does the term ephemeral mean?

- A. Lasting a long time
- B. Lasting only a short time
- C. Lasting only in the spring time
- D. Both short and long lasting

8. Cattail, iris, bulrush and pickerel weed are all considered what?

- A. Floating
- B. Submerged
- C. Emergent
- D. Algae

9. What are the common names of three insect orders used by the Ohio Environmental Protection Agency to perform a rapid bio assessment?

- A. Stoneflies, mayflies and caddis flies
- B. Stoneflies, mayflies and dragonflies
- C. Stoneflies, mayflies and hellgrammites
- D. Stoneflies, mayflies and water pennies

10. Feeding habits of macroinvertebrates are divided into four basic categories. Which set of categories below are correct?

- A. Shredders, collectors, grazers, and foragers
- B. Shredders, collectors, grazers, and swimmers
- C. Shredders, collectors, grazers, and predators
- D. Shredders, collectors, grazers, and carnivores

11 The Ohio EPA, Division of Surface Water has the 401 Wetlands Unit within the division. This division is tasked with reviewing plans, wetlands classification and delineation. What does the term wetland delineation mean?

- A. Creating a wetland after removing an existing wetland
- B. Following certain criteria to mark the boundaries of an existing wetland
- C. Planting vegetation to enhance an existing wetland
- D. Removing a field drain to create a new wetland

12. The abundance of this tree species on this aquatic testing site has a broad growing range in North America and produces a fruit edible by wildlife. Identify this tree species by common name using example of fruit and twig on the table and marked near stream?

- A. Red Maple
- B. Black Maple
- C. Sycamore
- D. Box-elder

13 .Identify this site-specific tree by scientific name using the bark and fruit provided?

- A. *Fagus grandifolia*
- B. *Prunus serotina*
- C. *Carya ovata*
- D. *Platanus occidentalis*

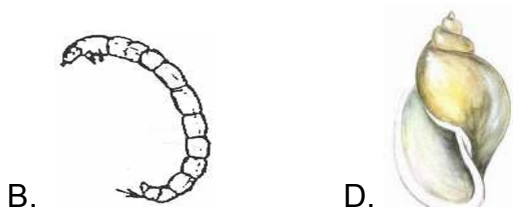
14. Identify the following macroinvertebrate, which has tail filaments and abdominal gills?

- A. Stonefly Nymphs
- B. Mayfly Nymphs
- C. Damselfly Nymphs
- D. Crayfish

15. Total Suspended Solids (TSS) in a stream environment increases what from the choices below?

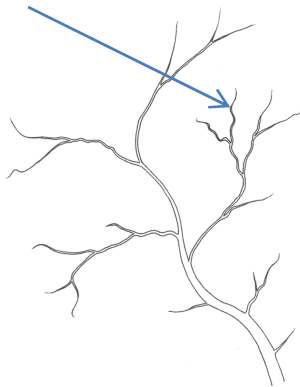
- A. Non-Point Sources of Pollution
- B. Dissolved Oxygen
- C. Point Sources of Pollution
- D. Temperature

16. The following organisms shown below potentially can be found in a stream environment. Which one would you most likely find in a stream with high water quality or in group taxa 1 on Ohio's Scenic Rivers Stream Quality Monitoring Assessment Form?



17. Which substrate grouping below is corrected based on largest to smallest in size?

- A. Boulder, cobble, gravel, sand, silt
- B. Boulder, gravel, cobble, sand, silt
- C. Boulder, sand, gravel, cobble, silt
- D. Boulder, silt, sand, gravel, cobble



18. The diagram provided depicts stream order (first order stream identified). Stream order is basically a size classification of streams and rivers. Streams that are orders 1-3 are classified as headwater streams and it is estimated that over 80% of the world's streams are found in this classification. Knowing what you know about stream order and using the diagram provided, how many orders can be identified?

- A. 1
- B. 2
- C. 3
- D. 4

Aquatics Test (6)

21. The scientific name of this small, bottom feeding, colorful (males during breeding season) is *Etheostoma caeruleum*, which is in the Percidae family. This family of fishes has at least 153 members, which makes this family the second most diverse family of fishes in North America.

- A. Banded Darter
- B. Greenside Darter
- C. Variegated Darter
- D. Rainbow Darter

22. There are three types (categories) of aquatic vegetation / plants. Submerged aquatic vegetation is one type. What are the others?

- A. Substrate and emergent
- B. Floating and emergent
- C. Emergent and substrate
- D. Substrate and floating

23. The Clean Water Act helped solve many of Ohio's traditional pollution problems. However, remaining problems, linked to non-point source pollution, are more challenging. Which of the following is not a way to reduce non-point source pollution?

- A. Remove all woody vegetation from headwater tributaries.
- B. Manage nutrient application according to site specific risk assessment
- C. Provide natural or artificial buffers to reduce runoff volume and delivery rate during rain and runoff events.
- D. Remove physical impoundments such as low-head dams

24. The Ohio EPA, Division of Surface Water uses a wide range of acronyms when producing reports and proposed changes to the public for comment. What does the acronym TMDL represent?

- A. Total Maximum Daily Load - A calculation of the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards
- B. Total Maximum Daily Load - A calculation of the minimum amount of a pollutant that a water body can receive and still safely meet water quality standards
- C. Total Minimum Daily Load - A calculation of the equal amount of a pollutant that a water body can receive and still safely meet water quality standards
- D. Total Monthly Daily Load - A calculation of the average amount of a pollutant that a water body can receive and still safely meet water quality standards

25. Erosion in the bed of a watercourse is called scour. Looking at the marked designated area of the North Branch of Caesar Creek on this test site what type of erosion would you consider this to be?

- A. Bank Erosion
- B. Sheet Erosion
- C. Gully Erosion
- D. Rill Erosion