2015 SW OHIO ENVIROTHON - AQUATIC SECTION TEST

Date:_____ Team Name:_____

1) Which of the following best describes what a watershed is?
    a. Zone where water and land meet.
    b. Service area boundary for a wastewater treatment plant.
    c. Network of pipes that drains storm water to local water bodies.
    d. Land area that drains water to a specific point.

2) If presented with the following data for a beach on Harsha Lake, which data show the water is unsafe for recreational use?
    a. 1000 colonies per 100 mL of E. coli
    b. 100 colonies per 100 mL of E. coli
    c. 10,000 colonies per 100 mL of total coliforms
    d. 200 colonies per 100 mL of fecal coliforms

3) Which of the following is a point source pollutant?
    a. French drain discharge
    b. Wastewater treatment plant discharge
    c. Houseboat discharge into lake
    d. Septic tank discharge

4) Storm water runoff from a construction site is filling a local stream with sediment and impacting aquatic life. What Best Management Practice (BMP) would you suggest?
    a. Capture the fish and move them to another healthier stream
    b. Dredge the affected section of the stream
    c. Install silt fences around the construction site
    d. Monitor water quality at the site

5) Where is water most likely to become polluted with sediment?
    a. Streams
    b. Glaciers
    c. Groundwater
    d. Precipitation

6) Which of the following group of tests would you perform to determine if a stream is being polluted with human wastes?
    a. Temperature and pH
    b. Nitrate and turbidity
    c. Fecal coliform and chloride
    d. Ammonia and heavy metals

7) What impact does water temperature have on stream water quality?
    a. Summer fish kills occur when water temperatures drop at night
    b. Heavy metal toxicity increases in colder water
    c. High nutrient levels causes excessive algal blooms in colder water
    d. Warm water decreases dissolved oxygen concentration

8) What do scientists believe is causing the Dead Zone in the Gulf of Mexico?
    a. Oil spills
    b. Harmful algal blooms
    c. High levels of nitrates
    d. Climate Change

9) What causes '*acid raid"*?
    a. Ozone gases mix with the with water droplets in clouds and fall to the earth as Freon
    b. Greenhouse gases mix with water droplets and fall to the earth as phosphoric acid
    c. Water droplets in clouds absorb carbon from the atmosphere and turn into carbonic acid
    d. Smoke particles mix with water droplets in clouds and fall to the earth as sulfuric or nitric acid

10) What would happen if a spawning site of large predatory fish, such as trout was destroyed?
    a. Trout would now be free of predation pressure and increase in population.
    b. Trout would eventually reduce in numbers and be eliminated from the site.
    c. Trout might eventually reach and "over-shoot" the carrying capacity of the ecosystem.
    d. Smaller prey fish would lose a critical reproductive habitat and eventually disappear.

11) Which human impact below could make drinking water unsafe?
    a. Polluting waterways with sediment
    b. Excess groundwater extraction for irrigation
    c. Penetration of harmful UV-B radiation into water bodies
    d. Excess nutrient runoff causing blue green algal blooms

12) What keeps streams full of water even during periods of drought?
    a. Groundwater
    b. Rain Barrels
    c. Storm water runoff
    d. Riparian Vegetation

13) What issue in Florida has led to saltwater intrusion, sinkhole development, concern about surface-water depletion from lakes and construction of a desalination plant to treat seawater for municipal supply?
    a. Urban Development
    b. Groundwater depletion
    c. Irrigation
    d. Fracking

14) Which of the following characteristics best describe a stable and healthy riparian zone?
    a. 75-foot wide zone with steep slopes, dense Honeysuckle, and undercut banks
    b. 30-foot wide zone with gentle slopes, dense stands of Johnson grass, and a concrete retaining wall
    c. 3-foot wide zone with gentle slope, intermittent large trees with grass underneath, and an aquatic vegetation edged stream bank
    d. 30-foot wide zone with steep slopes, undisturbed and permeable soils, and dense native vegetation

15) Which water conservation practice could potentially save the most amount of water in your home?
    a. Take short showers and draw less water for baths.
    b. Keep a gallon of drinking water in the refrigerator rather than running the tap for cold water.
    c. Turn off water while brushing teeth and shaving.
    d. Run your washing machine with a full load of clothes.

16) What three features do the US Army Corps of Engineers (US ACE) use to positively identify an area as a wetland?
    a. Presence of water all or part of the year, hydrophytic vegetation, and hydric soils
    b. Aquatic plants, flooded/saturated soil conditions, and waterfowl
    c. Saturated, flooded or ponded soils, aquatic vegetation, and aquatic animals
    d. Plant life growing in water, soil, or on a substrate that is periodically deficient in oxygen, presence of water all or part of the year, and hydroponic soils

17) Which water quality-related act designates *'selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations?'*
    a. Clean Water
    b. Wild and Scenic Rivers
    c. North American Wetlands Conservation
    d. Watershed Protection and Flood Prevention

18) The Clean Water Act (CWA) is the cornerstone of surface water quality protection in the United States. The Act does NOT:
    a. Protect fish, shellfish, and wildlife in and on the nations' waters
    b. Govern the safe transport of drinking water to the home.
    c. Employ a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways
    d. Protect the chemical, physical, and biological integrity of the nation's waters

19) If a farmer showed you this picture and asked you why the water in his/her farm pond was bright green, what would you tell them was the cause?
    a. Duckweed or Lemna sp.
    b. Water meal or Wolffia sp.
    c. Filamentous algae or Spirogyra sp.
    d. Bluegreen algae or Cyanobacteria sp.

20) View the picture card of aquatic plants provided and identify the nuisance species.
    a. Spadderdock
    b. Purple Loosestrife
    c. Arrowhead
    d. Currlyleaf pondweed

21) Identify the organism on the picture card that is Level 3 – Tolerant of Pollution using the SOS ID Card provided.
    a. Cranefly larva
    b. Dragonfly nymph
    c. Blackfly larva
    d. Water Penny Larva

22) View the picture card of fish provided and identify which fish is the least tolerant of pollution.
    a. Channel Catfish
    b. Walleye
    c. Creek Chub
    d. Brook Trout

23) Observe the laminated table of total phosphate results from a series of tests performed using a Hach total Phosphate Kit at several locations in the Little Miami River Watershed. Which site has the highest average Total Phosphate values? (calculators provided on table)
    a. Clear Creek
    b. Raiders Brittany
    c. SB Sycamore LM
    d. Turtle Creek 38

24) Use the Dichotomous Key provided to identify the macroinvertebrate.
    a. Dragonfly nymph
    b. Hellgrammite
    c. Damselfly nymph
    d. Cranefly larva

25) Observe the topographic map sections provided. Which map contains a watershed with the greatest number of stream orders and how many stream orders are shown?
    a. 3
    b. 4
    c. 5
    d. 6

ANSWERS

1. D
2. A
3. B
4. C
5. B
6. D
7. D
8. C
9. D
10. B
11. D
12. A
13. B
14. D
15. A
16. A
17. B
18. B
19. D
20. B
21. C
22. D
23. A
24. C
25. B
26.