Water Quality Clio 2013

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. A lake that is a relatively clear body of water that is cold and contains little life is called:
a. eutrophic
b. mesotrophic
c. oligiotrophic
d. autotrophic

____ 2. Why are trout uncommon in eutrophic lakes?
a. Trout need more phosphate than many other fish species
b. The water in a eutrophic lakes is not warm enough to support the respiration of trout.
c. pH levels in a eutrophic lake are too low to maintain a homeostatic balance in this species of fish.
d. Decomposition of organic materials in the bottom sediment uses up oxygen required by trout.

____ 3. The primary source of freshwater for human use is
a. groundwater
b. reservoirs
c. rivers.
d. lakes.
e. precipitation.

____ 4. The hydrologic cycle will naturally purify and recycle fresh water as long as humans don't
a. pollute the water faster than it is replenished.
b. withdraw it from groundwater supplies faster than it is replenished.
c. overload it with slowly degradable and nondegradable wastes.
d. all of these answers

____ 5. Of the following organisms, the group that is *least* likely to cause disease is
a. bacteria.
b. protozoa.
c. algae.
d. parasitic worms.

____ 6. A good indicator of water quality for drinking or swimming is the number of colonies of
a. coliform bacteria.
b. algae.
c. dinoflagellates.
d. phytoplankton.

____ 7. A body of water can be depleted of its oxygen by
a. viruses and parasitic worms.
b. organic wastes.
c. sediments and suspended matter.
d. organic compounds such as oils, plastics, solvents, and detergents.

____ 8. Nitrates and phosphates are examples of
a. disease-causing agents.
b. oxygen-demanding wastes.
c. organic plant nutrients.
d. inorganic plant nutrients.

____ 9. Acids, salts, and metals are examples
a. oxygen-demanding wastes.
b. organic plant nutrients.
c. inorganic plant nutrients.
d. water-soluble inorganic chemicals.

____ 10. The greatest source of water pollution in terms of total weight is
a. fertilizers.
b. sediments.
c. oxygen-demanding wastes.
d. water-soluble inorganic chemicals.

____ 11. Which of the following decrease(s) photosynthesis in bodies of water?
a. disease-causing organisms.
b. inorganic plant nutrients.
c. sediment or suspended matter.
d. heat.

____ 12. What does mitigation banking accomplish?
a. provides lawyers fees in lawsuits over wetlands development.
b. allows wetland areas to be traded for forest areas for development.
c. requires all wetlands to be protected from development.
d. allows wetlands to be developed as long as an equal area of wetland is created or restored.

____ 13. What is considered the single greatest threat to the Great Lakes?
a. dumping of raw human sewage.
b. alien species.
c. commercial fishing.
d. thermal pollution from electric power plants.

____ 14. Which of the following substances are removed to the greatest extent by combined primary and secondary wastewater treatment?
a. organic pesticides
b. organic oxygen-demanding wastes
c. toxic metals and synthetic organic chemicals
d. radioactive isotopes

____ 15. Which of the following types of sewage treatment is properly matched?
a. primary - biological process
b. secondary - mechanical process
c. advanced - physical and chemical process
d. secondary - chemical process

____ 16. Oxygen is carried to the bottom of a lake and nutrients from the bottom are carried to the top occurs during
a. Fall Turnover
b. Spring Stagnation
c. Summer Turnover
d. Winter Turnover

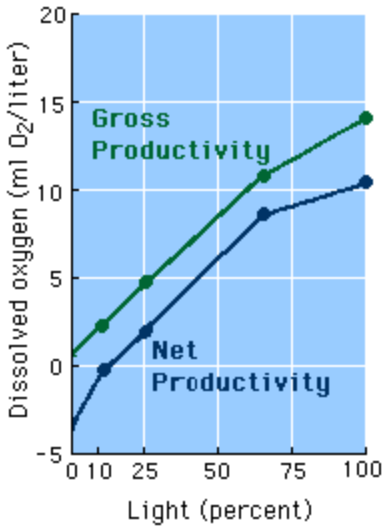
____ 17. The leading nonpoint source of water pollution is
a. municipal landfills.
b. runoff from city streets and storm sewers.
c. agriculture.
d. industrial wastes.

____ 18. Which one of the Great Lakes first showed intense effects of water pollution?
a. Superior
b. Huron
c. Erie
d. Ontario

____ 19. Which of the following statements is *false?*
a. Because of their flow, most streams recover rapidly from pollution by heat and biodegradable waste.
b. In rapidly flowing rivers, dissolved oxygen is replaced quickly.
c. The amount of oxygen in rivers declines in dry seasons.
d. The amount of oxygen in rivers increases as the water's temperature rises.

____ 20. In which aquatic environment would you expect dissolved oxygen to be highest?
a. A mountain lake that is clear and cold
b. A bog where the water is shallow and warm and there is a mat of aquatic plants
c. A marine tidepool
d. A cold mountain stream dropping over a series of small rock falls
e. A coral reef in a still lagoon

____ 21. At what light intensity do you expect there to be no net productivity?



a. Any intensity below 100%
b. Only at intensities of 0% and 2%
c. Any intensity below 10%
d. Any intensity above 25%

____ 22. Two streams without tributaries combine to form a larger stream. The larger stream is a
a. first order stream.
b. second order stream.
c. third order stream.
d. fourth order stream.

____ 23. Which order stream usually originate in hilly country, resulting in a high stream speed and cool temperature.
a. first order stream
b. second order stream
c. third order stream
d. fourth order stream

____ 24. What is transpiration?
a. Transpiration is a process where water vapor enters the atmosphere when animals breathe.
b. Transpiration is a process where water vapor forms clouds.
c. Transpiration is a process where water vapor exits a plant through holes in the leaves.
d. Transpiration is a process where water vapor enters the atmosphere as water evaporates from the ground.

____ 25. Benthic plants are
a. terrestrial plants living adjacent to lakes and waterways.
b. carnivorous.
c. also called cyanobacteria or blue-green algae.
d. too small to be seen with the naked eye.
e. aquatic plants rooted in the river or lake bottom.

____ 26. Which of the following is a point source of water pollution?
a. highways and paved roads in a rural area
b. lawns and gardens in a suburban area
c. a sewage treatment plant
d. an area of farmlands
e. city streets in an urban area

____ 27. Secondary sewage treatment can best be described as being a _____ process.
a. physical
d. mechanical

b. chemical
c. geological
e. biological

____ 28. The landmark legislation governing the health of the nation's waters is the _____, first enacted in _____

a. Clean Water Act; 1984
b. Clean Water Act; 1972
c. National Environmental Policy Act; 1972.
d. National Environmental Policy Act; 1969.

____ 29. Biochemical oxygen demand (BOD) is an important measure of

a. oxygen content of water and wastewater.
b. the oxygen differential between the air and the dissolved oxygen in the water.
c. a measure of the biological activity of water and wastewater.
d. is a measure of the quantity of oxygen consumed by microorganisms during the decomposition of organic matter.

____ 30. During Spring Turnover, ice on a lake melts causing:

a. cold water that forms to sink to the bottom of the lake.
b. warm water to settle to the bottom of the lake.
c. water on top of the ice to evaporate quickly.
d. condensation of air vapor and increase water levels in the lake.

____ 31. Which of the following organisms are representative of the limnetic zone?

a. microscopic plankton
b. frogs and their tadpoles
c. cattails and other emergent vegetation
d. worms, insect larvae, and crayfish
e. All of these

____ 32. Where would you expect to find the littoral zone of a lake?

a. shallow water area along the shore
b. open water area farther from shore with enough sunlight for photosynthesis
c. deepest known, where light typically does not penetrate effectively
d. bottom region where organisms tend to attach themselves to one spot

____ 33. Which of the following is an important ecological service provided by protected wetlands?

a. fertile agricultural soils
b. improved rainwater run-off
c. erosion
d. water purification
e. transportation

Matching

Aquatic organisms are linked together in feeding relationships. Match the producers, herbivores, and carnivores below:

a. Producers
b. Herbivores
d. 2nd-order Carnivore
e. Top Carnivore

c. 1st-Order Carnivore

____ 34. Perch

____ 35. Diatom

____ 36. Mayfly

____ 37. Pike

____ 38. Stonefly

All lakes and ponds will eventually fill up and disappear due to a natural aging processes. Match the following characteristics of lakes and ponds with the bodies of water.

a. Oligotrophic
b. Eutrophic
c. Mesotrophic

____ 39. cold water

____ 40. have the highest diversity of plants and animals

____ 41. warmer water and shallow

____ 42. an aging lake

____ 43. contains little life

____ 44. are habitat for more rare fish and plants

____ 45. fewer nutrients

____ 46. contain a high range of nitrates and phosphates

____ 47. water is stratified in the summer

____ 48. nutrient rich lake, are very fertile

____ 49. usually have a high pH

____ 50. low productivity

____ 51. often support phytoplankton (algal) blooms

Match the following fish species with the lakes they dominate.

a. Mesotrophic Lake
b. Oligotrophic Lake
c. Eutrophic Lake

____ 52. Pike

____ 53. Trout

____ 54. Whitefish

____ 55. Carp

____ 56. Bass

____ 57. Catfish

Water Quality Clio 2013
Answer Section

MULTIPLE CHOICE

1. ANS: C PTS: 1
2. ANS: D PTS: 1
3. ANS: A PTS: 1
4. ANS: D PTS: 1
5. ANS: C PTS: 1
6. ANS: A PTS: 1
7. ANS: B PTS: 1
8. ANS: D PTS: 1
9. ANS: D PTS: 1
10. ANS: B PTS: 1
11. ANS: C PTS: 1
12. ANS: D PTS: 1
13. ANS: B PTS: 1
14. ANS: B PTS: 1
15. ANS: C PTS: 1
16. ANS: A PTS: 1
17. ANS: C PTS: 1
18. ANS: C PTS: 1
19. ANS: D PTS: 1
20. ANS: D PTS: 1
21. ANS: B PTS: 1
22. ANS: B PTS: 1
23. ANS: A PTS: 1
24. ANS: C PTS: 1
25. ANS: E PTS: 1
26. ANS: C PTS: 1
27. ANS: E PTS: 1
28. ANS: B PTS: 1
29. ANS: D PTS: 1
30. ANS: A PTS: 1
31. ANS: A PTS: 1
32. ANS: A PTS: 1
33. ANS: D PTS: 1

MATCHING

34. ANS: D PTS: 1
35. ANS: A PTS: 1
36. ANS: B PTS: 1
37. ANS: E PTS: 1

38. ANS: C PTS: 1

39. ANS: A PTS: 1
40. ANS: C PTS: 1
41. ANS: B PTS: 1
42. ANS: B PTS: 1
43. ANS: A PTS: 1
44. ANS: C PTS: 1
45. ANS: A PTS: 1
46. ANS: B PTS: 1
47. ANS: C PTS: 1
48. ANS: B PTS: 1
49. ANS: B PTS: 1
50. ANS: A PTS: 1
51. ANS: B PTS: 1

52. ANS: A PTS: 1
53. ANS: B PTS: 1
54. ANS: B PTS: 1
55. ANS: C PTS: 1
56. ANS: A PTS: 1
57. ANS: C PTS: 1