MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Drinking Water and Environmental Health Division

DRINKING WATER OPERATOR CERTIFICATION
DISTRIBUTION (S-LEVEL) PRACTICE EXAM

1. The rates of chemical corrosion reactions are increased as the _____

   A. temperature of the water increases.
   B. density of the water increases.
   C. temperature of water decreases.
   D. pH of the water remains the same.

2. _____ is/are the most common inhibitor(s) used in water treatment for corrosion control.

   A. Phosphates
   B. Trihalomethanes
   C. Nitrates
   D. Hypochlorite

3. All low hazard, testable backflow assemblies shall be tested, **EXCEPT** for lawn irrigation systems, at least _____

   A. yearly.
   B. every three years.
   C. every five years.
   D. every seven years.

4. When is it necessary to install an RPZ instead of a pressure vacuum breaker?

   A. During a back pressure situation.
   B. On a lawn irrigation system with no booster pump.
   C. On a lab sink.
   D. On a hose bib at a residential home.

5. Calcium hypochlorite for water system use is typically purchased in a concentration of _____

   A. 10%.
   B. 15%.
   C. 65%.
   D. 100%.

6. The concentration of chlorine during the 24-hour period of the continuous disinfection method for water main installation is not to drop below _____

   A. 1 mg/L.
   B. 4 mg/L.
   C. 10 mg/L.
   D. 25 mg/L.

7. A water supply has a chlorine dose of 4.2 mg/L and carries an average residual of 0.9 mg/L. The demand is _____

   A. 3.3 mg/L.
   B. 3.9 mg/L.
   C. 4.9 mg/L.
   D. 5.1 mg/L.

8. A 150,000-gallon water storage tank must be disinfected. If your final dosage of chlorine is 10 ppm, how many pounds of HTH (60% available chlorine) will you use?

   A. 10.5 pounds
   B. 12.65 pounds
   C. 20.85 pounds
   D. 22 pounds

9. Upon a public emergency happening, a water supply must file a written report to the State of Michigan within how many days?

   A. 7 days
   B. 30 days
   C. 90 days
   D. 365 days

10. Wet barrel hydrants _____

    A. have an operating valve on the top of the hydrant with a drain hole.
    B. have an operating valve on the outlet without a drain hole.
    C. cannot be drained through the drain hole at the base of the hydrant.
    D. have the valve shut-off at the base of the hydrant with a drain hole.

11. The rapid opening and closing of fire hydrants can cause catastrophic failure within the distribution system due to _____

    A. cavitation.
    B. water hammer.
    C. backflow.
    D. corrosion.

12. What is the main purpose of a hydrant diffuser?

    A. To prevent freezing of the hydrant.
    B. To protect the fire hydrant from corrosion.
    C. To assist fire departments during a fire emergency.
    D. To redirect water flow and prevent erosion.

13. A water standpipe has a diameter of 18 ft and a height of 130 ft. If it is full of water, what is the pressure at the bottom of the standpipe?

    A. 41.58 psi
    B. 56.28 psi
    C. 148 psi
    D. 300.23 psi

14. A circle's circumference is defined as the measure of the _____

    A. inside area.
    B. surface circumference.
    C. distance around the outside of the circle.
    D. surface width.

15. If water is flowing at a constant rate (Q) and the diameter of the pipe is doubled, the velocity (V) will _____

A. remain the same.
B. increase to triple its original value.
C. decrease to ¼ of its original value.
D. increase to 1/3 of its original value.

16. 2.26 MGD (million gallons per day) is equal to _____

A. 150 gallons per minute (gpm).
B. 1569 gpm.
C. 5070 gpm.
D. 10500 gpm.

17. If a pump has a rate of 900 gpm, what is the equivalent pumping rate in MGD?

A. 0.13 MGD
B. 1.3 MGD
C. 12.5 MGD
D. 44.0 MGD

18. What type of instrument should be used at the same time a bacteriological sample is taken for compliance purposes?

A. DPD colorimeter
B. Float mechanism
C. Pressure gauge
D. Thermocouple

19. What type of lining does ductile iron pipe contain to prevent internal corrosion?

A. Coating of paint
B. Polyethylene wrap
C. Epoxy coating
D. Mortar lining

20. What is the main purpose of a thrust block in the distribution system?

    A. To prevent corrosion of the water main.
    B. To prevent pipe joints from separating by absorbing water main forces.
    C. To prevent cavitation from occurring in the distribution system.
    D. To prevent lead and copper from leaching into the water.

21. How many gallons of water are there in 1 foot of a 9-inch water main?

    A. 1.3 gallons
    B. 1.7 gallons
    C. 2.6 gallons
    D. 3.3 gallons

22. You desire to flush 500 feet of a new 10-inch water main with a velocity of 2.5 feet per second (fps). What flow of water (in gpm) will be required to reach this velocity?

    A. 190 gpm
    B. 246 gpm
    C. 445 gpm
    D. 606 gpm

23. What is the purpose of a water meter?

    A. To record the flow.
    B. To prevent freezing.
    C. To prevent corrosion of customer piping.
    D. To increase pressure of incoming water.

24. The coliform group of bacteria _____

    A. indicate the water is harmful to drink.
    B. are highly pathogenic.
    C. are indicator organisms.
    D. are used for analysis because they are not very hardy.

25. What is the main purpose of having daily turnover in storage tanks throughout the distribution system?

    A. To increase profits.
    B. To ensure good water quality.
    C. To increase water age.
    D. To intensify taste and odor.

26. What type of joint is most common inside a well house?

A. Push-on
B. Ball joint
C. Mechanical socket
D. Flanged joint

27. The “C” factor of a water pipe is the _____

A. measurement of area to pipe diameter.
B. measurement of pipe circumference to area.
C. the cost to diameter ratio.
D. the measurement of interior roughness.

28. When addressing the public due to issues with the distribution system, it is best to _____

A. designate one spokesperson for the water utility.
B. have all water utility workers talk to the public.
C. have the supervisor speak on the topic.
D. do nothing and leave them in the dark.

29. For a centrifugal pump, the purpose of the packing gland is to _____

A. protect the shaft from excessive wear.
B. keep the shaft from moving.
C. eliminate the need for packing materials.
D. retain heat in the packing box.

30. One of the annual reports which must be submitted to the State of Michigan _____

A. summarizes the number of cross connection control activities.
B. lists the names of certified operators on the staff.
C. summarizes the operations of service connections.
D. lists the number of meters repaired.

31. Routine bacteriological samples are taken at points that are representative of conditions within the _____

A. water treatment plant.
B. distribution system.
C. elevated storage tanks.
D. reservoir.

32. According to the Michigan Safe Drinking Water Act, 1976 PA 399, as amended, _____ is(are) required for rapid correction or mitigation of water supply emergencies.

A. a Reliability Study
B. a Sampling Site Plan
C. an Emergency Response Plan
D. construction plans and specifications

33. What purpose does a hydropneumatic tank serve in a water system?

A. To provide water storage to meet daily demands.
B. To act as a finished water storage tank.
C. To minimize the land used for water storage.
D. To increase system pressure and absorb water hammer.

34. A tank has as diameter of 35 ft and depth of 18 ft. What is the volume of the tank in ft^3?

A. 17309 ft^3
B. 18500 ft^3
C. 24300 ft^3
D. 58478 ft^3

35. When turning a gate valve in the distribution system, what is the object on top of the valve being turned?

A. Gland
B. Bonnet
C. Wedge
D. Operating nut
