



PRACTICE EXAM GRADE I TREATMENT

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1. When organic wastes are discharged to receiving waters, oxygen is depleted by
 - a. Algae during the day
 - b. Bacteria
 - c. Ducks
 - d. Limestone rocks
2. Employee hazards include
 - a. Noxious or toxic gases or vapors
 - b. Oxygen deficiency
 - c. Physical injuries
 - d. All of the above
3. Hydrogen sulfide gives off an odor similar to
 - a. Ammonia
 - b. Chlorine gas
 - c. Rotten eggs
 - d. Decayed wood
4. Coliform bacteria are
 - a. Algae
 - b. Coagulant aids
 - c. Indicators
 - d. Sequestering agents
5. Three waterborne diseases are
 - a. Mumps, measles, colds
 - b. Scarlet fever, pneumonia, hay fever
 - c. Typhoid fever, dysentery, cholera
 - d. Tuberculosis, diphtheria, chickenpox
6. A cylindrical tank is 10 ft in diameter and 20 ft in height. What is the approximate capacity in liters?
 - a. 44 450
 - b. 31 030
 - c. 5 942
 - d. 4 445
7. Immediate first aid for burns is to
 - a. Bandage tightly
 - b. Cover liberally with a salve
 - c. Immerse in warm water
 - d. Flood with cold water
8. Which of the pH readings indicates an acidic wastewater?
 - a. 3
 - b. 7
 - c. 9
 - d. 12

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9. If water weighs 8.34 lb/gal, how much will 7.5 gal weigh?
- 50.8 lb
 - 62.5 lb
 - 75.6 lb
 - 77.3 lb
10. One mL is what fraction of a L?
- 1/10
 - 1/100
 - 1/1 000
 - 1/100 000
11. A possible cause of electric motor failure is
- Dirt
 - Moisture
 - Friction
 - All of the above
12. Your pump ran continuously for 24 hours and delivered 288 000 gal. The capacity of the pump is _____ gpm.
- 100
 - 200
 - 1 000
 - 12 000
13. Approximately how many gallons of wastewater would 600 ft of 6-in. pipe hold?
- 740
 - 880
 - 900
 - 930
14. A water seal on a pump serves a dual purpose. It acts as a lubricant and it also
- Acts as a coolant to keep the pump bearing from overheating
 - Keeps gritty material from entering the packing box
 - Keeps the pump primed
 - Is a reserve water supply
15. The elevation of any pump above the source of supply should not exceed _____ ft.
- 2.2
 - 22
 - 200
 - 224
16. Friction in a pipeline causes
- Aeration
 - Corrosion
 - Loss of pressure
 - Overheating

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17. Before repairing a pump's electrical circuit, which of the following actions should you take?
 - a. Disconnect the circuit breaker, place a red tag stating "do not activate," and lock out
 - b. Notify your supervisor
 - c. Tell all of the operators not to activate the circuit
 - d. Turn the pump off
 18. Pump maintenance includes
 - a. Checking operating temperature of bearings
 - b. Checking packing gland
 - c. Operating two or more pumps of the same size alternatively to equalize wear
 - d. All of the above
 19. When routinely inspecting a centrifugal pump, it is noted by the operator that the bearings are excessively hot. This could be caused by
 - a. Overlubrication
 - b. Speed too slow
 - c. Worn impeller
 - d. Worn packing
 20. In a centrifugal pump, internal leakage is prevented by
 - a. Impellers
 - b. Sleeves
 - c. Volute
 - d. Wear rings
 21. A valve that allows water to flow in one direction only is a _____ valve.
 - a. Check
 - b. Gate
 - c. Globe
 - d. Petcock
 22. An outfall is
 - a. A sewer line that drops to a lower level in a manhole
 - b. A submain
 - c. The line leaving the plant
 - d. The main line that carries all of the wastewater to the plant
 23. Centrifugal pump parts include a
 - a. Diaphragm
 - b. Impeller
 - c. Piston
 - d. Rotor
 24. Which indicates a good quality domestic activated sludge?
 - a. Black color and septic odor
 - b. Brown color and musty odor
 - c. Brown color and a lot of dark brown foam
 - d. Light tan and light fluffy foam

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25. Which of the following forms of plant life is necessary for the proper functioning of a stabilization or oxidation pond?
- Algae
 - Cattails
 - Water lilies
 - Weeds
26. Cattails growing in a lagoon will
- Cause short circuiting in the affected lagoon
 - Eliminate mosquito larvae
 - Increase diurnal pH fluctuations
 - Increase toxic blue-green algae concentrations in the effluent
27. At what time of day is the dissolved oxygen content highest in a facultative lagoon?
- 3 a.m.
 - 7 a.m.
 - 9 a.m.
 - 3 p.m.
28. The greatest bacterial activity and the highest BOD₅ removal in a facultative lagoon will occur when there is
- Good sunlight, cold temperature, and strong wind
 - Heavy overcast, warm temperature, and strong wind
 - Good sunlight, cold temperature, and moderate breeze
 - Good sunlight, warm temperature, and moderate breeze
29. Chlorine gas is
- Colorless
 - Heavier than air
 - Nontoxic
 - Odorless
30. Acids should never be added to chlorine solutions because they
- Cause chlorine gas to be released
 - Corrode or "eat away" the solution tank
 - Decrease the disinfecting properties of chlorine
 - Result in the formation of a chloride precipitate
31. As water temperatures decrease, the disinfecting action of chlorine
- Decreases
 - Increases
 - Remains the same
32. The highest concentration of algae growth in a facultative lagoon is usually observed
- Near middepth
 - Near bottom
 - Near top
 - In the sludge layer

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33. Which of the following is not a possible cause of short circuiting in a pond?
- Excessive weed growth
 - High influent BOD
 - Poor arrangement of inlet and outlet
 - Irregular pond bottom
34. Common settling times in primary clarifiers range from
- 15 to 30 minutes
 - 30 to 45 minutes
 - 1 to 2 hours
 - 2 to 3 hours
35. Which gas is produced in anaerobic digesters and can be used as a fuel?
- Propane
 - Methane
 - Ethane
 - Carbon dioxide
36. Compute the lagoon's detention time.
- Data: Surface area = 6.0 ac
Average depth = 3.0 ft
Average daily flow (influent) = 0.25 mgd
1 ac (area) = 43 560 sq ft
1 cu ft = 7.48 gal
- 3 days
 - 8 days
 - 24 days
 - 29 days
37. How many pounds of chlorine gas are necessary to treat 4 000 000 gal of wastewater at a dosage of 2 mg/L?
- 61 lb
 - 65 lb
 - 67 lb
 - 69 lb
38. Your wastewater treatment plant serves 1 100 people. The flow averages 80 000 gpd. The approximate daily flow contribution per person is
- 14 gpd/cap
 - 73 gpd/cap
 - 80 gpd/cap
 - 140 gpd/cap
39. The rock in most trickling filters is placed
- Directly in the ground
 - Directly in a concrete slab
 - On system tile underdrains
 - On a rubber tile floor

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40. Chlorine is primarily used to
- Disinfect
 - Prevent corrosion
 - Raise pH
 - Stabilize organics
41. What is the purpose of heating and mixing a primary anaerobic digester?
- To eliminate all oxygen present
 - To increase the digestion rate
 - To keep methane gas in suspension
 - To prevent settling of grit on the bottom of the digester
42. The following device is used to measure the flow of wastewater:
- Comminutor
 - Comparator
 - Parshall flume
 - Sluice gate
43. A spray nozzle on the mechanically cleaned screen has become plugged. To ensure your safety, before entering the screen housing to repair the nozzle, you should
- Leave a note on breaker panel of repair being made
 - Request assistance for repair
 - Turn off, lock out, and tag the motor control
 - Turn off local control switch
44. Exhaust from a chlorinator room should be taken from
- Anywhere—the location is not important
 - At floor level
 - Close to the entrance
 - In the ceiling
45. Which of the following would be the safest action to take in the event of a major chlorine container leak?
- Call the fire department
 - Notify local police or sheriff
 - Roll the container so that liquid rather than gas escapes
 - Submerge the container in a basin or stream if feasible
46. A composite sample will give a(n)
- Even color
 - High pH
 - Instantaneous sample
 - Representative long-term sample
47. Chlorine residual may be determined using the reagent
- Diethyl-*p*-phenylene diamine (DPD)
 - Ethylene diamine tetraacetic acid (EDTA)
 - Polychlorinated biphenyls (PCB)
 - Sodium thiosulfate ($\text{Na}_2\text{S}_2\text{O}_3$)

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50. Sources for more information and training courses are
- a. Federal, state, and local water pollution control agencies
 - b. Libraries
 - c. Local and national water pollution control associations
 - d. All of the above

TREATMENT I - ANSWERS

<u>Item #</u>	<u>Answer</u>	<u>Subject</u>
1.	B	General
2.	D	General
3.	C	General
4.	C	General
5.	C	General
6.	A	General
7.	D	General
8.	A	General
9.	B	General
10.	C	General
11.	D	Support Systems
12.	B	Support Systems
13.	B	Support Systems
14.	B	Support Systems
15.	B	Support Systems
16.	C	Support Systems
17.	A	Support Systems
18.	D	Support Systems
19.	A	Support Systems
20.	D	Support Systems
21.	A	Support Systems
22.	C	Support Systems
23.	B	Support Systems
24.	B	Unit Process/Process Control
25.	A	Unit Process/Process Control
26.	A	Unit Process/Process Control
27.	D	Unit Process/Process Control
28.	D	Unit Process/Process Control
29.	B	Unit Process/Process Control
30.	A	Unit Process/Process Control
31.	A	Unit Process/Process Control
32.	C	Unit Process/Process Control
33.	B	Unit Process/Process Control
34.	D	Unit Process/Process Control
35.	B	Unit Process/Process Control
36.	C	Unit Process/Process Control
37.	C	Unit Process/Process Control
38.	B	Unit Process/Process Control
39.	C	Unit Process/Process Control
40.	A	Unit Process/Process Control
41.	B	Unit Process/Process Control
42.	C	Unit Process/Process Control
43.	C	Unit Process/Process Control
44.	B	Unit Process/Process Control
45.	A	Unit Process/Process Control
46.	D	Unit Process/Process Control
47.	A	Unit Process/Process Control
50.	D	Technical Supervision/Management