

10. Examination Questions

1. Which is the best type of artificial respiration? *Basic*
 - a. Oral.
 - b. Revised Sylvester.

2. An oxygen deficiency, or dangerous concentrations of toxic or suffocating gases, may be found in *Basic*
 - a. Toilets.
 - b. Wet wells.
 - c. Chlorine contact tanks.
 - d. Air blower rooms.
 - e. Offices.

3. If concentrated acid is spilled on the floor, immediately *Basic*
 - a. Sound the alarm.
 - b. Run to a shower and wash yourself thoroughly.
 - c. Turn off the power and notify the supervisor.
 - d. Pour sodium nitrate and wash with water.
 - e. Wash with water and neutralize with sodium bicarbonate (baking soda).

4. When working in a lab, one should *Basic*
 - a. Always wash his hands before smoking or eating.
 - b. Use laboratory glassware for a coffee cup.
 - c. Add water to acid.
 - d. Always look into the end of a test tube during a reaction or when heating the tube.
 - e. Hold a piece of glassware in his bare hands while heating it.

5. Which of the following chemicals is extremely corrosive to human tissue? *Basic*
 - a. Sodium thiosulfate.
 - b. Orthotolidine.
 - c. Ferric chloride.
 - d. Ammonium chloride.
 - e. Sulfuric acid.

6. Which one of the following is most explosive? *Basic*
 - a. Pure digester gas.
 - b. Digester gas mixed with methane.
 - c. Digester gas mixed with air.

7. What is the recommended procedure in diluting sulfuric acid with distilled water? *Basic*
 - a. Pour sulfuric acid into the water.
 - b. Pour water into the sulfuric acid.

8. Any lamps used to illuminate sewers should be *Basic*
 - a. Brilliant red.
 - b. Plastic.
 - c. Explosion proof.
 - d. Flourescent.

9. Which of the following areas in a wastewater treatment plant are sources of toxic fumes? *Basic*

- a. Tightly covered manholes.
- b. Enclosed screening or degritting areas.
- c. Digested sludge pump rooms.
- d. Sludge digestion tanks.
- e. Sludge gas piping and collection systems.
- f. Chlorine feeder rooms.
- g. Chlorine storage areas.
- h. All of these.

10. Artificial respiration must be started on a nonbreathing casualty within *Basic*

- a. 6 min.
- b. 4 min.
- c. 10 min.

11. Cigarettes, pipes, and other sources of fire, when used in a manhole, deep pumping station structures, digester control chambers, or other poorly ventilated structures, *Basic*

- a. Provide a good way to test for inflammable gases.
- b. Have actually caused serious, and in some cases fatal, explosions.
- c. Are theoretically unsafe but have never been known to cause an explosion.
- d. Have no significance because sewer gas does not burn under any condition.

12. The lack of an unpleasant odor in a manhole, sump pump, or other structure does not always mean that no dangerous gases are present because *Basic*

- a. Some dangerous gases have no odor.
- b. Oxygen may still be lacking.
- c. Some gases deaden the sense of smell.
- d. All of the above.
- e. None of the above.

13. Any one of the following may be present in a manhole or similar structure. Which is the most toxic to man when inhaled? *Basic*

- a. Carbon dioxide.
- b. Nitrogen.
- c. Hydrogen sulfide.
- d. Methane.

14. One of the reasons that air should be excluded from digesters is because *Basic*

- a. Gas storage capacity is reduced.
- b. The entrance of air mixed with the gas produced in the digester could create an explosive mixture.
- c. It interferes with action of the aerobic bacteria.
- d. Harmful bacteria may be brought in with the air.
- e. It lowers the temperature of the digester.

15. When one is working on any piece of electrical equipment, the circuit breaker should be *Advanced*

- a. Open.
- b. Closed.
- c. Tagged.
- d. Locked out.
- e. Locked out and tagged.

16. Carbon dioxide, one of the gases given off by the decomposition of sludge, is not poisonous, but it may cause *Advanced*

- a. Combustion.
- b. Corrosion.
- c. Burns.
- d. Asphyxiation.
- e. None of the above.

17. The dangerous gases most likely encountered in the wastewater industry are *Advanced*

- a. Oxygen, hydrogen, and ozone.
- b. Carbon monoxide, methane, and hydrogen sulfide.
- c. Flourine, bromine, and iodine.
- d. Freon, nitrogen, and cyanide.

18. When working in an empty digester, an operator does not need to *Advanced*

- a. Ventilate the digester.
- b. Test for SVI.
- c. Test for explosive gas mixtures.
- d. Use explosion-proof lights.
- e. Wear nonsparking shoes.

19. Wastewater sludge gas presents the following hazards:

- a. Fire and asphyxiation. *Advanced*
- b. Asphyxiation and explosion.
- c. Fire and explosion.
- d. Fire, asphyxiation, and explosion.

20. Digester gas may be dangerous if it is mixed with *Advanced*

- a. Chlorine gas.
- b. Hydrogen sulfide.
- c. Air.
- d. Neon.
- e. Carbon dioxide.

21. Oxygen deficiency may be overcome in the atmosphere of a lift station by *Advanced*

- a. Lowering the temperature in the lift station.
- b. Providing good ventilation.
- c. Sealing of the vents.
- d. Not overloading the pumps.
- e. Increasing the speed of the motors.

22. If water is added to concentrated acid, instead of acid into water.

Advanced

- a. Water will sink to bottom immediately.
- b. Dilution is faster.
- c. Temperature goes down and the mixture tends to form ice.
- d. Heat is generated and the mixture tends to splash acid.
- e. There is no difference.

ANSWER KEY

SECTION 10 - Safety Practices

1. a
2. b
3. e
4. a
5. e
6. c
7. a
8. c
9. h
10. b
11. b
12. d
13. c
14. b
15. e
16. d
17. b
18. b
19. d
20. c
21. b
22. d