

8. Examination Questions

1. Cattails, rushes, and grass at the water's edge should be cut or killed in order to discourage Basic
 - a. High water losses.
 - b. Unsightly conditions.
 - c. Mosquito breeding.
 - d. Interference with wind movement.
2. The embankment of wastewater stabilization ponds should be covered with Basic
 - a. Grass with deep penetrating roots.
 - b. Grass with shallow roots.
 - c. Weeds.
3. Important operation and maintenance aspects of waste stabilization ponds include control of Basic
 - a. Diffuser.
 - b. Waste gas burner.
 - c. Protozoa.
 - d. Drying beds.
 - e. Weeds and insects.
4. Scum rafts in a waste pond Basic
 - a. Are desirable because they will help algae growth.
 - b. Are undesirable because they will attract birds.
 - c. Are desirable because they will prevent mosquito breeding.
 - d. Are desirable because they will prevent growth of tules.
 - e. Are undesirable because they will cause odor and reduce sunlight penetration.
5. Surface agitation in a lagoon is a recommended method of controlling Basic
 - a. Suspended algae.
 - b. Blue-green algae.
 - c. Duckweed.
 - d. Cattails.
6. The highest DO content may be expected at Basic
 - a. 3 a.m.
 - b. 3 p.m.
 - c. 7 a.m.
 - d. 9 a.m.
7. The most favorable time for biological activity in wastewater stabilization ponds is in Basic
 - a. Winter.
 - b. Fall.
 - c. Summer.
 - d. Spring.
8. A long hot period may cause overloading of a lagoon by Advanced
 - a. Killing bacteria.
 - b. Lowering the DO saturation level.
 - c. Causing excessive algae.
 - d. Lowering the water level.

9. When the population of algae and its activities increase, the pH of a waste stabilization pond usually *Advanced*

- a. Remains at 4.0.
- b. Remains at 7.0.
- c. Goes up.
- d. Goes down.
- e. None of the above.

10. The primary cell of a wastewater stabilization pond *Advanced*

- a. Should retain solids and allow the liquid to seep into the ground.
- b. Is intended as an open lagoon for anaerobic treatment.
- c. Is a biological wastewater treatment facility.
- d. Provides the same type of treatment as a primary treatment plant.

11. Emergent vegetation on the pond bottom, such as cattails, may best be controlled by *Advanced*

- a. Pulling.
- b. Spraying.
- c. Keeping the water depth greater than 2 ft.
- d. Alternating ponds so as to let the bottom dry out.

12. In spraying to control rushes and cattails, chemicals should be mixed in *Advanced*

- a. Oil emulsion.
- b. Plain water.
- c. Soap or detergent solution.
- d. Kerosene.

13. In the design and operation of an oxidation pond, which of these factors is important? *Basic*

- a. Surface area.
- b. Depth and shape.
- c. Control of weeds and vegetation around the edges to prevent mosquito breeding.
- d. Inlets and outlets.
- e. All of these.

14. Depth is an important factor to be considered in the design and operation of an oxidation pond. The 3-ft depth presently recommended has been selected because *Basic*

- a. Common water plants grow best at the 3-ft depth.
- b. Common water plants are discouraged at this depth, and a reasonable depth of sunlight penetration is obtained.
- c. Vertical circulation is obtained at greater depths, and horizontal currents prevail at shallower depths, which seriously interferes with performance.

15. An aerated cell is followed by _____ or _____
(Pick two.) *Basic*
- a. a standard cell and polishing ponds.
 - b. a trickling filter.
 - c. a clarifier and chlorination.
 - d. chlorination of effluent.
16. Performance of waste stabilization ponds is a function of *Advanced*
- a. Type and quantity of virus.
 - b. pH.
 - c. Type of soil.
 - d. Short circuiting.
 - e. Surface area.
17. The gas produced in largest volume as a result of the proper digestion of wastewater solids in a lagoon is *Advanced*
- a. Hydrogen sulfide.
 - b. Carbon dioxide.
 - c. Methane.
 - d. Nitrogen.
 - e. Hydrogen.
18. The basis of operation of a wastewater lagoon for secondary treatment is *Basic*
- a. Aerobic organisms and algae.
 - b. Anaerobic organisms and chlorophyll.
 - c. Saprophytic bacteria and flukes.
 - d. Paramecia and amoebae.
19. Biological activity within a lagoon is carried on by *Basic*
- a. Aerobic bacteria.
 - b. Anaerobic bacteria.
 - c. Algae.
 - d. All of the above.
20. In a stabilization pond, oxygen for the aerobic bacteria comes from a form of plant life. This form of plant life is called *Basic*
- a. Bacteria.
 - b. Grass.
 - c. Reeds.
 - d. Algae.
21. Which of the following produce the most desirable results in an oxidation pond? *Advanced*
- a. Bacteria.
 - b. Algae.
 - c. Vegetation.
 - d. Chemicals.
 - e. Chlorination.
22. Hydrogen sulfide is ordinarily not a problem in properly designed and operated waste stabilization ponds because *Basic*
- a. It is in very low concentration.
 - b. It is assimilated by algae.
 - c. It is without any odor.
 - d. It dissociates into hydrogen ions and metallic salt at low pH.
 - e. It dissociates into hydrogen ions and hydrosulfide ions at high pH.

23. The most common cause of odor from waste stabilization ponds is

Basic

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

24. Select the chemical that may be used in an attempt to correct septic conditions in a new oxidation pond.

Advanced

- a. Calcium sulfate.
- b. Sodium chloride.
- c. Hydrogen sulfide.
- d. Sodium nitrate.
- e. Sulfuric acid.

25. Odors from waste stabilization ponds are usually caused by

Advanced

- a. High nitrate concentration in the raw wastewater.
- b. Shallow depth of the pond.
- c. Algae growth.
- d. High SS in the raw wastewater.
- e. Overloading of the pond.

26. Facultative ponds are

Basic

- a. Faulty operating ponds.
- b. Completely aerobic.
- c. Aerobic on the top and anaerobic at the bottom.
- d. Very shallow ponds.
- e. Mechanically aerated ponds.

ANSWER KEY

SECTION 8 - Lagoons and Ponds

- | | |
|-------------------|-----------|
| 1. c | 14. b |
| 2. a b | 15. a & c |
| 3. e | 16. b |
| 4. e | 17. b |
| 5. a b | 18. a |
| 6. b | 19. d |
| 7. c | 20. d |
| 8. b | 21. b |
| 9. c, d & e | 22. a |
| 10. d | 23. c |
| 11. b & c | 24. d |
| 12. b | 25. e |
| 13. e | 26. c |