

## 11. Examination Questions

1. Digested wastewater sludge is elutriated to Basic
  - a. Prevent excessive shrinkage.
  - b. Control the flow on the beds.
  - c. Lower the amount of chemical treatment necessary.
  - d. Control bulking.
  - e. Prevent clogging of pipes.
  
2. Digested sludge is sometimes elutriated before chemical addition and filtration. When this elutriated water (wash water) is recirculated to primary clarifiers, it Advanced
  - a. Decreases the organic load to the aerobic biological system.
  - b. Decreases the settleable solids to the primary tank.
  - c. Increases the settleable solids to the primary tank.
  - d. None of the above.
  
3. Which chemicals are usually applied to sludge that is to be dewatered by vacuum filtration? Basic
  - a. Sodium chloride and sulfur.
  - b. Potassium permanganate.
  - c. Ferric chloride and lime.
  - d. Ferric chloride and alum.
  
4. Digested sludge may be placed on sand drying beds or Basic
  - a. Discharged to the river.
  - b. Spread on land.
  - c. Pumped to the settling tank.
  
5. The drying time of sludge is affected by Basic
  - a. The degree of digestion of the sludge.
  - b. The pH of the supernatant.
  - c. The relative stability of the sludge drying bed.
  - d. The operating temperature in the digester.
  - e. The BOD of the raw domestic wastewater.
  
6. Which of the following affects the drying of sludge? Basic
  - a. Climatic conditions.
  - b. Sludge age.
  - c. Sludge composition.
  - d. Depth of sludge application.
  - e. All of the above.
  
7. Which pair of factors affect the drying of digested sludge on sand beds? Basic
  - a. Drainage and evaporation.
  - b. Drainage and sludge index.
  - c. Sludge age and specific gravity.
  - d. Sludge index and sludge age.
  - e. Evaporation and sludge index.
  - f. Temperature of digester and evaporation.

8. Which of the following insecticides is relatively safe and recommended for controlling flies in sludge drying beds or open primary digesters? *Advanced*

- a. Malathion.
- b. Parathion.
- c. Endrin.
- d. Diesel oil.
- e. Toxaphene.

9. From a practical standpoint, the process that produces sludge having the highest fertilizer value is the *Advanced*

- a. Fine screen process.
- b. Septic tank process.
- c. Primary settling tank and separate sludge digestion process.
- d. Activated sludge process.
- e. Imhoff tank process.

10. If objectionable odors are produced from the stack of a sludge incinerator, the most probable cause is *Advanced*

- a. Too low a temperature.
- b. Too septic a sludge.
- c. The organic content of the sludge is too high.

11. The purpose of a sludge drying bed is to *Basic*

- a. Convert digested sludge into a good fertilizer.
- b. Provide for the digestion of sludge.
- c. Provide storage space for digested sludge.
- d. Provide for the separation of much of the water from digester sludge.

12. Centrifuges are effective in *Advanced*

- a. Tertiary treatment.
- b. Dewatering sludges.
- c. Secondary treatment.
- d. Nutrient removal.
- e. Primary treatment.

13. Vacuum filters are used to *Advanced*

- a. Reduce the moisture in undigested sludge.
- b. Dewater digested sludge in preparation for heat drying.
- c. Prepare sludge for burial or use as fill.
- d. All of the above.
- e. None of the above.

ANSWER KEY

SECTION 11- Sludge Dewatering and Disposal

1. c
2. d
3. c
4. b
5. a
6. e
7. a
8. a
9. c
10. a
11. d
12. b
13. d