

2 Marks

- 1) Why ventilation of sewer is important? 2) What is meant by relative stability?
- 3) List any four objective of slug digestion.
- 4) Draw oxygen sag curve.
- 5) What is grit chamber?
- 6) Enlist the name of joints used in pipeline.
- 7) Give the composition of biogas fuel.
- 8) Write note on :
 - a) Disinfection.
 - b) Polishing
 - c) Stabilization Pond
- 9) What is drop manhole ?
- 10) Write two advantages of aerobic decomposition over anaerobic decomposition.
- 11) What is sludge thickening?
- 12) What is batch reactor?
- 13) What is the importance of coliform bacteria?
- 14) Write two advantages of egg-shaped sewers.
- 15) Define BOD & COD ?
- 16) Enlist the merits of Sewage system.
- 17) Define F/M ratio?
- 18) List the factors of affecting coagulation.
- 19) Explain the term sewer appurtenances.
- 20) Explain meaning of term fresh sewage and stale sewage.

5 Marks

- 1) What is the purpose of aeration process? Discuss the various types of aerators with sketches.
- 2) Differentiate between Septic tank and Imhoff tank.

- 3) Design a circular trickling filter unit for treating 4 million liter of sewage per day having 5 day BOD of 16-0mg/l.
- 4) What is the function of grit chamber? What are the major design criteria governing the design of grit chamber?
- 5) Design an Imhoff tank to treat sewage from small town with 25000 populations. The rate of sewage may be assumed as 150 lped. Make suitable assumptions wherever needed. Draw neat sketch.
- 6) What are inverted siphons? Where they are used? Sketch and explain.
- 7) Discuss the methods of oils and grease removal from the sewage.
- 8) Discuss the activated sludge process unit with recirculation by the help of schematic diagram.
- 9) Design an Imhoff tank to treat the sewage from a small town with 30,000 population. The rate of sewage may be assumed as 150 litres per head per day. Make suitable assumptions wherever needed.
- 10) What is stabilization pond? Discuss its working principle in detail
- 11) Explain in details the sampling techniques used for collect the waste water per testing
- 12) Describe the important pollutants associated with Textile industry and what are the method used to treat the waste water of textile.
- 13) Describe and Explain the flow diagram of the process of aerated lagoons.
- 14) Describe in details the land treatment method for Sewage disposal
- 15) Explain the process of decomposition of Sewage.

(10 Marks)

- 1) Write notes on anaerobic lagoon.
- 2) What is the function of grit chamber? what are the major design criteria governing the design of grit chamber.
- 3) Explain with neat sketch about oxidation pond and macrophyte ponds.
- 4) Write short note on:
 - a) Flootation units
 - b) Disinfection
 - c) Storm water flow
- 5) Give a brief account of general composition of sewage. What is the purpose and principles involve in its treatment and disposal.
- 6) What do you understand by an inverted siphon? Why do you construct it? What are the purposes served by an inverted siphon?
- 7) What is meant by ventilation of house sewer and how it is achieved? Also discuss the use of antisiphonage pipes in multistoried blocks.
- 8) What do you understand by advanced waste water treatment? How it is different from the conventional treatment? Give in a tabular form, important advanced water treatment processes.
- 9) Explain clearly how you determine the area of secondary settling tank used in activated sludge process. How do you decide the solids loading rate for such tank?
- 10) Give a brief account of general composition of sewage. What is the purpose and principles involve in its treatment and disposal.
- 11) Write notes: (a) Sub soil irrigation ,(b) sewage sickness

12) Describe the important points, necessary to be considered for design and for the construction of house drainage

13) What do you understand by stream Sanitation ? Explain how the Streeter Phelps equation could be used in practicing stream Sanitation?

14) What is meant by strength of sewage ? Discuss the limitations of BOD test .

15) Describe the technique used to minimize the industrial water pollution.