

Code: CE6T4

III B.Tech-II Semester–Regular/Supplementary Examinations–March 2019

**ENVIRONMENTAL ENGINEERING-II
(CIVIL ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

PART – A

Answer *all* the questions. All questions carry equal marks

11x 2 = 22 M

1.

- a) What is self-cleaning velocity?
- b) What is Imhoff tank?
- c) What is grit?
- d) What is detention time?
- e) Define sludge bulking.
- f) What are the factors affecting the self-purification capacity in rivers?
- g) What are the different ways of decomposition of sewage?
- h) What are the problems encountered in the operation of trickling filter?
- i) Explain about '3R' Principle?
- j) Define sludge digestion and sludge thickening.
- k) What is the importance of transfer station in solid waste management.

PART – B

Answer any *THREE* questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) Explain in brief forces acting on sewer pipes with the help of neat sketches? 8 M
- b) Explain in detail about the sewer appurtenances used in sewer systems with the help of neat diagram. 8 M
3. a) Explain the procedure for estimating the BOD of a given sample of sewage. 8 M
- b) Calculate the ultimate BOD at 35°C given the deoxygenation constant at 20°C as 0.1 per day. 8 M
4. a) Explain in detail the activated Sludge process. 8 M
- b) What are important terms involved in loading of activated sludge plant? 8 M
5. a) What are the Factors affecting sludge digestion and how are they controlled. 8 M
- b) Explain briefly different methods of disposal of sludge? 8 M

6. a) Explain the various steps followed in Solid Waste Management. 8 M
- b) A town of population of 50000 generates municipal solid waste of 500g per person per day. How many trucks would be needed to collect the waste twice weekly? The trucks have a capacity of 4.5 t (metric tonnes) each and operate 5 days per week. Assume that the trucks average two loads per day at 75% capacity. If 20% of the waste generated is Recycled, determine the weight of MSW that enters the landfill. If the density of the waste is 280 kg/m^3 , what is the volume of MSW? 8 M