

Code: CE6T4

**III B.Tech-II Semester–Regular/Supplementary Examinations–March 2018**

**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) Define sanitation and mention various components of sanitation?
- b) Write a short note on sewage appurtenances?
- c) Define BOD and COD?
- d) Enumerate sedimentation and flotation?
- e) Write a short note on tricking filters& discuss merits and demerits?
- f) Explain about sludge volume index?
- g) Mention different steps in biological sludge management?
- h) What are the constituents of waste water (sewage)?
- i) What are the rules & regulations that guide waste management in India?
- j) What is a sanitary landfill?
- k) How can treated sewage be re-used / recycled?

## PART – B

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

3 x 16 = 48 M

2. a) Explain the estimation of storm run-off and the factors influence it? 8 M
- b) A RCC Sewer of Dia 500 mm is laid @ a slope of 1 in 750 using kutters 'C' in chezy's formulae, find the velocity and discharge when it is flowing, flow  $n= 0.012$ ? 8 M
3. a) Explain the need for sewage treatment? What is the importance of primary treatment & also mention various units with their objectives? 8 M
- b) Design a septic tank for colony population of 150 persons. Assume suitable data whenever necessary? 8 M
4. a) Explain the components & the operational principles of activated sludge process? 8 M
- b) Determine the size of high rate trickling filters for the following data? 8 M
- i) Flow = 4.5mld
  - ii) Recirculation Ratio = 1.4
  - iii) BOD of raw sewage=250mg/l
  - iv) BOD removal in primary clarifier = 25%
  - v) Final effluent BOD designed = 30mg/l

5. a) Explain various stages in self purification of water body along with oxygen sag curve? 8 M
- b) Explain the volume reduction due to dewatering of sludge from a liquid content of 8% to 15 %? 8 M
6. a) Explain clearly about different methods of solid waste management? 8 M
- b) Explain clearly about composting in solid waste management? Why do we need to burn garbage in incinerators? 8 M