

MODEL QUESTION PAPER

FIFTH SEMESTER B.TECH (CIVIL) ENGINEERING DEGREE EXAMINATION 2015

SUBJECT: ENVIRONMENTAL ENGINEERING I

Time: 3 Hours

Max marks: 100

Make suitable assumptions wherever necessary

Answer all questions from Part A

PART A

1. Give a short note on the principle of plain sedimentation
2. What is the significance of fluorides, if present in drinking water
3. Draw a neat sketch of the layout of a conventional water treatment plant
4. List the different methods of chlorination
5. Explain the lime soda process for treating hard water

(5x4=20)

PART B

Answer any one full question from each module

MODULE I

6. a. Derive the Stokes' equation of settling of particles in a sedimentation tank (10)
b. Determine the settling velocity of a particle having diameter 0.06 mm in water.
Assume specific gravity of particles=2.65, kinematic viscosity of water=1.007 centistokes (10)

OR

7. Design a clariflocculator for supplying 10 Mld of water for a city. (20)

MODULE II

8. Design a rapid sand filter for a water requirement of 6 Mld. (20)

OR

9. Discuss the different layouts adopted for a distribution system with neat sketches (20)

MODULE III

10. The population for the past three decades as per the census reports of a city is given below. Determine the expected population for the year 2021 by
- Arithmetical increase method
 - Geometrical increase method
 - Decreasing rate of growth method

Census year	1951	1961	1971	1981	1991
Population in thousands	40	100	120	185	210

(20)

OR

11. a. Explain Hardy Cross method used for pipe network analysis in water distribution systems (10)
- b. State the different assumptions done in analysis of pipe networks. (10)

MODULE IV

12. a. Explain the phenomena of adsorption (10)
- b. Discuss the breakthrough curve of adsorption (10)

OR

13. Explain the different methods that can be used for removal of dissolved solids in water with neat sketches (20)