

III B.Tech I Semester Supplementary Examinations, April/May 2005
ENVIRONMENTAL ENGINEERING
(Civil Engineering)

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Estimate the rate of demand of water per capita per day, and total quantity of water required per day for a town of 20,000 population.
(b) Explain briefly the basic objectives of a good water supply scheme and their importance in the water supply scheme.
2. (a) A distribution main is tapped at a point where R.L. is 30m and where pressure is 12m head. The service pipe is 60m long and supplies water to 12 occupants at an average rate of 135 LPCD. The hourly variation factor is given as 4. Calculate the size of the supply main if residual head at the top outlet having R.L of 33m is not to fall 1.5m. use the formula $V = 835 m^{2/3} s^{1/2}$
(b) How is the capacity of a distribution reservoir determined?
3. Explain how B.O.D and C.O.D can be determined in the laboratory.
4. Explain with neat sketches the following sewer appurtenances
 - (a) Drop Manhole
 - (b) Inverted syphon
 - (c) Catch Basin
 - (d) Grease Trap.
5. (a) What are the factors to be considered for location of a water treatment plant?
(b) Sketch and explain different types of inlet and outlet arrangements for sedimentation tanks.
6. (a) Compare the design and working features of the rapid sand filter and pressure filter.
(b) Design a set of rapid sand filters for treating water required for a population of 50000. The rate of supply being 180 lpcd. The filters are rated to work at 5000 liters/hour/sq.m. Assume any other suitable data required.
7. (a) State different features of racks and screens
(b) Write a schematic diagram of a typical wastewater treatment plant.
(c) Explain the function of skimming tank.
8. (a) What is an oxidation pond? State its advantages and disadvantages.
(b) State the features for the design of oxidation ponds.
