Code: CE5T2

III B.Tech - I Semester – Regular Examinations - November 2015

ENVIRONMENTAL ENGINEERING - I
(CIVIL ENGINEERING)

Duration: 3 hours   Max. Marks: 70

Answer any FIVE questions.   All questions carry equal marks

1 a) The following is the population data of a city, available for past census records. Determine the population of the city in 2035 by   7 M
   i) arithmetical increase method
   ii) geometrical increase method

Year	1965	1975	1985	1995	2005	2015
Population (P)	25000	40000	60000	75000	90000	95000

   b) What are the objectives of protected water supply system? Explain various factors affecting per capita consumption and design period?   7 M

2 a) Explain in detail about reservoir intake with neat sketches?   7 M

   b) List out various types of pumps? Explain the suitability of various sources of water supply with regard to quality and quantity.   7 M

3 a) List out various water borne diseases caused due to bacteria and viruses. Explain in detail various steps of treatment for ground water with neat sketches.   7 M

b) What is the significance of water analysis? Explain in detail various physical and chemical tests with an emphasis on drinking water standards.   7 M

4 a) Prove that efficiency of a plain sedimentation tank is independent of depth.   7 M

b) Explain how 'Optimum Coagulant Dose' is found on a particular day for a Water treatment plant.   7 M

5 a) List out various filtration techniques. Explain the construction and working of rapid sand filter (with the help of neat sketch).   7 M

b) List out various filter materials. Differentiate between slow sand filter and rapid sand filters.   7 M

6 a) Explain in detail the process of disinfection of water using bleaching power (with equations).   7 M

b) What is hardness? List out various methods of removing temporary hardness. Explain in detail any one method to remove temporary hardness.   7 M

7 a) Explain in detail various layouts of water distribution system with an emphasis on their advantages and disadvantages. 7 M

b) List out various appurtenances in distribution system. Explain in detail the analysis of distribution system using hardy cross method. 7 M

8 a) What are the objectives of house drainage. Explain in detail various principles governing design of building drainage. 7 M

b) List out various types of fittings. Explain in detail single stack and one pipe systems. 7 M