CBCS Scheme

USN ☐☐☐☐☐☐☐☐☐☐ 　　　　15CV64

Sixth Semester B.E. Degree Examination, June/July 2018
Water Supply and Treatment Engineering

Time: 3 hrs. 　　　　　　　　　　　　　　　　　　　　Max. Marks: 80

**Note: Answer any FIVE full questions, choosing
ONE full question from each module.**

Module-1

1　a. Enumerate points to be considered for water supply scheme. **(08 Marks)**
　b. What is fire demand? Compute fire demand for a city having population 1,40,000 by various formula. **(08 Marks)**

OR

2　a. What is peaking factor? Explain the factor governing design period. **(08 Marks)**
　b. The population of 5 decades from 1970 to 2010 are given in the table. Find the population after one, two and three decades beyond the last known decade by : i) geometric increase method ii) incremental increase method.

Year	1970	1980	1990	2000	2010
Population	25000	28000	34000	42000	47000

(08 Marks)

Module-2

3　a. What is the purpose of analysis of water point out significant of each unit in water treatment? **(08 Marks)**
　b. What is sampling? Explain the steps involved in collection of river water sample. **(08 Marks)**

OR

4　a. Enumerate the necessity of microbiological examination of water. Explain membrane filler technique for bacteriological examination of water. **(08 Marks)**
　b. Write the permissible limits and effects of following water quality parameter according (IS10500 – 1991) i) Turbidily ii) p^H iii) Chloride iv) Lead. **(08 Marks)**

Module-3

5　a. Briefly explain mechanism of filtration. **(08 Marks)**
　b. A rectangular settling tank without mechanical equipment is to treat 1.8 million liters per day of raw water. The sedimentation period is to be 4 hours, the velocity of flow 8cm/min and the depth of water and sediment 4.2m. If an allowance of 1.2m for sediments is made. Design the dimension of the tank. **(08 Marks)**

OR

6　a. Briefly explain design elements of a rectangular sedimentation tank. **(08 Marks)**
　b. What are the characteristics of good coagulant? **(04 Marks)**
　c. Explain the causes for Fouling of membrane and how it can be controlled. **(04 Marks)**

Module-4

7 a. What is permanent hardness? With the help of chemical formula explain zeolite process of removing hardness. **(08 Marks)**

b. Discuss the importance of nano filtration and explain different forms of chlorination. **(08 Marks)**

OR

8 a. Discuss the characteristics of ideal disinfectants and explain the mechanism of disinfection. **(08 Marks)**

b. Explain reverse osmosis principle with the help of neat sketch. **(04 Marks)**

c. Enumerate importance of deflouridation. Mention the methods of deflouridation. **(04 Marks)**

Module-5

9 a. Briefly explain economical diameter of raising main. **(04 Marks)**

b. Mention the points to be considered for selection of a site for intake structure. **(04 Marks)**

c. A city has a population of 1,50,000 water is to be supplied at the rate of 160 liters per head per day. If the static lift of the pump is 40 meters. Calculate the B.H.P of motor. The raising main is 300m long and its diameter is 50cm. Assume that motor efficiency is 85%. Pump efficiency is 60% f = 0.04 and peak hour demand is 1.5 times of average demand. **(08 Marks)**

OR

10 Briefly explain the following :

a. Sluice valve
b. Reflux value
c. Post fire hydrant
d. Air valve. **(16 Marks)**

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