

Model Question Paper (CBCS) with effect from 2015-16

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15CV64

Sixth Semester B.E. Degree (CBCS) Examination

Water supply and Treatment Engineering

Time: 3hours

Max Marks: 80

Note:- Answer Any Five full questions choosing one from each module

Module -1

- 1 a. What are the various types of water demand? Explain them in brief. (08 marks).
b. The census records of a small town is as follows:

Year	1980	1990	2000	2010
Population	9000	13000	17500	23000

Calculate the probable population in 2020, 2030, 2040 by decreasing growth method. (08 marks).

OR

- 2 a. Define per capita demand and design period. Explain the factors governing design period. (08 marks).
b. The census records of a town show the population as follows as follows:

Present population = 50,300
Population before one decade = 46,500
Population before two decades = 43,100
Population before three decades = 40,500

Calculate the probable population after one , two and three decades by using i) Geometrical increase Method ii) Incremental increase method. (08marks)

Module -2

3. a. State the various surface and underground sources of water. (04 marks)
b. What are the objectives of water treatment. (04marks)
c. Give the maximum permissible limits as per the BIS for the following water quality parameters.
i) Fluoride ii) Iron iii) Total hardness iv) Nitrate. Also indicate their health significance.(08marks)

OR

4. a. Suggest the treatment flowchart for treating underground water, highlighting the significance of each unit. (06 marks)
b. what are the objectives of sampling. (04 marks)
c. What is sampling. Explain the different methods of sampling. (06 marks)

Module -3

5. a. Describe the feeding and mixing devices of coagulants. (08 marks)
b. Design a rapid sand filter unit for treating 4.5 MLD of water. (08 marks)

OR

6. a. With the help of the neat sketch explain the working of clariflocculator. (08marks)
b. Explain the basic principles involved in ultra and micro filtration. (08 marks)

Module -4

7. a. Explain RO and nano filtration membranes and elements. (10 marks)
b. Briefly explain the zeolite process of softening of water. (08 marks)

OR

8. a. Explain the methods of disinfection along with its merits and demerits. (10 marks)
b Explain fluoridation and defluoridation. (06marks)

Module -5

9. a. Explain the factors to be considered in selection of intake structures.
Enumerate types of intakes. (08 marks)
b. From a clear water river 3m deep and maximum water level at 30m, water is pumped to an elevated reservoir at 70m at a constant rate of 9 lakh litres/hr and the distance is 1500m. Give the economical diameter of the rising main and the WHP of the pump. Neglect minor losses and take $f=0.01$. (08 marks)

OR

10. a. Enumerate different types of
i) Pipe appurtenances ii) pipe materials (06 marks)
b. Explain the various methods of distribution system. (10 marks)