**Model Question Paper (CBCS Scheme)**

**Seventh Semester B.E. Degree Examination**

**(CIVIL)**

**Water Supply And Treatment (18CV46)**

**Time: 3Hours Max. Marks: 100**

Note: Answer FIVE full questions, choosing one full question from each Module

**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: 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.

**(04 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.  **(08 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. **(10 marks)**

Year 1980 1990 2000 2010

Population 9000 13000 17500 23000

**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 clarriflocculator. (04marks)

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. **(10 marks)**

**OR**

8.a. Explain the methods of disinfection along with its merits and demerits. **(10 marks)**

b Explain fluoridation and defluoridation. **(10marks)**

**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 depep and maximum water level at 30m, water is pumped to an elevated reservoir at 70m at a contant rate of 9 lakh litres/hr and the distance is 1500m. Give the economical diameter of thr 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  **(10 marks)**

b. Explain the various methods of distribution system**. (10 marks)**