

- (d) Define Per Capita Demand.
- (e) Differentiate between Confined and Un-confined Aquifer.
- (f) Define population forecasting.
- (g) Differentiate between temporary and permanent hardness.
- (h) Name different types of pumps used in water supply.
- (i) Describe Fire Demand in water supply.
- (j) Define equivalent pipe. $2 \times 10 = 20$

Roll No.

Total Pages : 04

July-22-00281

B.Tech. EXAMINATION, 2022

Semester V (CBCS)

CIVIL ENGINEERING

CE-505

Environmental Engineering-I

Time : 3 Hours

Maximum Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt *Five* questions in all, selecting *one* question from each Sections A, B, C and D. Q. No. **9** is compulsory.

Section A

1. What are the common impurities found in natural sources of water ? Explain their effects upon its quality ? **10**

2. What are the two major types of sources of water supplies ? Discuss the merits and demerits of both these types of sources. **10**

Section B

3. Explain in detail the Physical and Chemical ways for examination of water. **10**
4. The data of demand of a town is as shown below : Calculate the storage capacity, if the pumping into the tank is restricted from 0600 hrs. to 1800. **10**

Time (hrs.)	Demand (Million Litres)
00-04	0.36
04-08	0.84
08-12	1.50
12-16	0.85
16-20	0.73
20-24	0.45

Section C

5. Design a mechanical rapid mix unit for treating water at the rate of 6000 m³/day. Assume a detention period of 30 seconds and velocity gradient of 600 s⁻¹. **10**

6. (a) Distinguish between Type I and Type II settling of suspended particles. **4**
- (b) Describe any *two* mixing devices of coagulants with figure. **6**

Section D

7. Enlist various pipe appurtenances in a water distribution network and with neat sketches explain any *two* of them. **10**
8. (a) Enlist any *four* type of pumps usually used in water supply system and the main factors which are to be considered while selecting a suitable pump. **5**
- (b) What are different types of traps used in plumbing system ? What are their merits and demerits ? **5**

(Compulsory Question)

9. (a) Discuss quality standards of drinking water.
- (b) What do you understand by *E-coli* ?
- (c) What is Flocculation ?