SP - 93

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Seat No.	

T.Y. B.Tech. (Civil Engineering) (Semester - V)
(CBCS) Examination, December - 2023
ENVIRONMENTAL ENGINEERING - I
Sub. Code : 80765

Day and Date : Saturday, 02 - 12 - 2023 **Total Marks : 70**

Time : 10.30 a.m. to 1.00 p.m.

Instructions :
1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data if necessary and state them clearly.**
4) **Answer shall be supported by adequate sketches.**

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SECTION - I

Q1) Attempt all questions. **[12]**

a) What are various types of demand of water for town with fig? Also mention the factors affecting water demand. **[6]**

b) Write a brief note on **[6]**

i) Infiltration Galleries

ii) MPN

iii) Common water born diseases

Q2) Attempt any Two. **[12]**

a) State the objectives of using coagulant aid. Enumerate the coagulant aids used in water treatment. **[6]**

OR

a) Design a circular sedimentation tank for a flow of 4.2 MLD, detention period is 4.5 hours & depth of water is 3.3m. **[6]**

b) Explain the principle and working of Tube settler. **[6]**

P.T.O.

Q3) Attempt any Two. **[11]**

a) What is break point chlorination? Explain with graph. **[6]**

b) Write a short note on **[5]**

i) The theory of filtration

ii) Reverse Osmosis

OR

b) Give the stoichiometric equations of the Lime-Soda softening process. **[5]**

SECTION - II

Q4) Attempt all questions **[12]**

a) Give the advantages and disadvantages of cast-iron and R.C.C. pipes used for water supply scheme. **[6]**

b) Write a short note on Thrust block design. **[6]**

Q5) Attempt any Two. **[12]**

a) A pipe network consist of following pipes. **[8]**

Pipe	Length(m)	Diameter (mm)	Friction Factor	Flow(m^3/s)
AB	350	300	0.012	0.6
BC	500	250	0.010	0.3
AD	450	300	0.011	0.4
DC	500	250	0.012	0.2

Inflow at A is 1m3/s; while outflows at B, C & D are 0.3, 0.5 & 0.2m^3/s respectively. Find the corrected discharge in each pipe taking only one trial.

OR

a) Draw neat sketch of pumping and combined water distribution system and explain working of each. **[8]**

b) What are basic functional and hydraulic requirements of a water distribution system. **[4]**

Q6) Attempt any Two. **[11]**

a) Sketch and explain: **[6]**

i) Air relief valve

ii) Non-return valve

OR

a) Enumerate the methods of leakage detection in water distribution system. Explain any one method. **[6]**

b) Explain Concept of Preparation of DPR. **[5]**

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