



PRESIDENCY UNIVERSITY

BENGALURU

Roll No.														
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End - Term Examinations – May / June 2026

Date: 23- 05- 2026

Time:09:30am – 12:30pm

School: SOE	Program: B. Tech	
Course Code :CIV2515	Course Name: Water Infrastructure System	
Semester :IV	Max Marks:100	Weightage: 50%

CO - Levels	C01	C02	C03	C04	C05
Marks	12	12	16	38	22

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M=20M

1.	Define design discharge.	2 Marks	L1	C01
2.	Define mineral and carbonic acidity.	2 Marks	L1	C02
3.	Name two advantages of plain sedimentation.	2 Marks	L1	C03
4.	List the primary coagulant and coagulant aids of two each.	2 Marks	L1	C03
5.	Name two parameters in designing of rapid mixing unit.	2 Marks	L1	C03
6.	Define filtration in water treatment.	2 Marks	L1	C04
7.	What is the thickness of sand bed and gravel in SSF and RSF?	2 Marks	L1	C04
8.	Name two halogens using as disinfectants.	2 Marks	L1	C04
9.	Define Super chlorination.	2 Marks	L1	C04
10.	Define zeolite.	2 Marks	L1	C05

Part B

Answer the Questions.

Total Marks 80M

11.	a.	Explain Factors affecting per capita demand and the breakup of per capita water demand for an average Indian city	10 Marks	L2	CO2
Or					
12.	a.	Explain the various types of water demand, using as key parameters in planning a water supply scheme.	10 Marks	L2	CO 2
13.	a.	Describe the characteristic features of different classes of impurities based on size.	10 Marks	L2	CO2
Or					
14.	a.	Describe environmental significance of any four chemical parameters in water with BIS limits.	10 Marks	L2	CO2
15.	a.	A rectangular sedimentation tank is designed for a surface overflow rate of 12,000 liters/hr/m ² . Calculate the percentage of suspended particles of diameter 0.03 mm will be removed in the tank. Take kinematic viscosity (ν) = 0.897 mm ² /sec and specific gravity of particles 2.65.	10 Marks	L3	CO3
Or					
16.	a.	Sketch the rapid mixing unit and flocculator with their components and design parameters.	10 Marks	L3	CO3
17.	a.	A city has to treat 24 MLD of turbid water using rapid sand filters with a filtration rate of 5 m ³ /hr/m ² . (a) Determine the size of the filter bed if the ratio of length to breadth (L:B) = 2:1, and only one unit of filter is provided. (b) Determine the percentage of filtered water required for backwashing the filter, if the rate of backwash is 6 times the rate of filtration and the duration of backwash is 10 minutes. Backwashing is carried out once per day.	10 Marks	L3	CO3
Or					
18.	a.	Chlorine usage in the treatment of 20,000 cubic meters of water per day is 8 kg. The residual chlorine after 10 minutes of contact is 0.15mg/L. Calculate the chlorine dosage and chlorine demand of the water in mg/L, respectively.	10 Marks	L3	CO3
19.	a.	Demonstrate jar test apparatus and procedure to determine optimum dosage of coagulant with sketch.	20 Marks	L3	CO4
Or					

20.	a.	Chlorination is the process of adding chlorine or chlorine compounds to water to disinfect it by killing harmful microorganisms. Illustrate the various types of chlorination in disinfection of water.	20 Marks	L3	CO4
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21.	a.	Infer the working principle of reverse osmosis with neat sketch and its disadvantages.	20 Marks	L4	CO5
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Or

22.	a.	Distinguish the different classes of water distribution networks with neat sketch.	20 Marks	L4	CO5
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