TE (civil) sem VI R'19 C scheme 22-05-2025

(3 Hours)

[Total Marks : 80]

Notes :

1. Question No ONE is Compulsory.
2. Answer any THREE from remaining.
3. Draw FIGURES wherever necessary. Figures to the right indicate full marks.
4. WRITE proper question / sub question numbers on the left margin allotted in answer sheet.
5. Each Question carries EQUAL marks.
6. ASSUME any additional data if necessary and state it clearly.

1.		Attempt (Any 4)	
	a)	Explain the factors affecting location of intake structure.	05
	b)	Calculate the discharge of 1.0 m circular sewer laid at a slope of 1 in 500, When it is running half full. Assume n in manning's formula as 0.012.	05
	c)	Give the acceptable limits of the following for the public drinking water i) Turbidity ii) Hardness iii) Iron iv) Chlorides v) pH	05
	d)	How to remove oil and grease in the sewage treatment?	05
	e)	How does rooftop rainwater harvesting contribute to the water conservation?	05
	f)	Explain 5R principle in Solid waste management.	05
2.	a)	A Filter unit is 4.5m x 9 m. after filtering 11000 cubic meter per day in 24-hour period, the filter is backwashing at a rate of 12 lit/sq.m/sec for 20 minutes. Compute the average filtration rate, Quantity and percentage of treated water in washing.	10
	b)	What are the different systems of Plumbing? Explain with diagram single stack and Two pipe system.	10
3.	a)	Write a note on Break point chlorination with neat sketch.	5
	b)	Draw typical layout of water treatment plant and write functions of each unit briefly.	10
	c)	The 5 day 30^0 C BOD of sewage sample is 100 mg/l. Calculate its 5 days 20^0C BOD. Assume the deoxygenation constant at 20^{0C}, K_{20} as 0.1.	5
4.	a)	Calculate the amount of bleaching powder required in kg/day for 20 MLD of water. The filtered water exerts a chlorine demand of 0.2mg/lit chlorine available from beaching powder is 40%.	05

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b) Draw a flow chart of activated sludge process and explain the treatment units involved in it. 05

c) Design a rectangular sedimentation tank to treat 6MLD of water. Assume data wherever required and check for surface loading and wear loading. 10

5. a) Design a septic tank for colony of 200 persons, having sewage /capita /day is 130 lit, desludging period is 2 years and length: width is 4:1. 10
Enlist the method used for disposal of septic tank effluent.

b) What is meant by disinfection in treating public water supply? What is its importance? Discuss the role of chlorine as a disinfecting agent with reference to its disinfecting action and its doses. 10

6. a) Enlist different methods for water softening. Explain Zeolite process with neat sketch. 05

b) Define S.V.I. and its significance in the context of sewage treatment? 05

c) Enlist the types of distribution system sand explain any one in detail. 05

d) What are the health impacts of air pollution, and how can air pollutants be categorized? 05