Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI EXAMINATION – SUMMER 2025

Subject Code: 3160611 Date:22-05-2025

Subject Name: Environmental Engineering

Time: 10:30 AM TO 01:00 PM Total Marks:70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Design an intake well for handling 0.25 m^3/sec of water.	**03**
	(b)	Differentiate between suspended growth and attached growth biological treatment process.	**04**
	(c)	Explain different types of water demand which has to be considered for the design of a water supply scheme for a city.	**07**
Q.2	**(a)**	Differentiate between plain sedimentation and sedimentation aided with coagulation.	**03**
	(b)	Enlist the factor affecting site selection of an intake.	**04**
	(c)	Explain different types of networks used for water distribution.	**07**
		OR	
	(c)	Design a PST for handling 8 MLD of water.	**07**
Q.3	**(a)**	Give sanitary significance of: Nitrate, Iron and fluoride with reference to drinking water.	**03**
	(b)	Derive the equation for settling velocity for a discrete particle.	**04**
	(c)	Enlist different chemical characteristics of wastewater and explain any five of them in detail.	**07**
		OR	
Q.3	**(a)**	Define COD, BOD and TOC.	**03**
	(b)	Find the area required for a rapid sand filter for a city with the population of 60000 with an average rate of demand of 180 lpcd. Also find the number of beds required.	**04**
	(c)	Explain the working of rapid sand filter with a neat sketch. Also highlight the importance of backwashing for efficient working of the filter.	**07**
Q.4	**(a)**	If 4 day BOD of a sample at 30˚C is 250 mg/lit, find its 5 day BOD at 35℃.	**03**
	(b)	Explain the role of EIA in achieving the goal of sustainable development.	**04**
	(c)	Explain the factors affecting self-purification capacity of a river.	**07**
		OR	
Q.4	**(a)**	Find the most economical diameter of rising main to carry a discharge of 0.15 m^3/sec.	**03**
	(b)	Calculate the diameter and discharge of a circular sewer laid at a slope of 1 in 350 when it is running half full, and with a velocity of 1.1 m/s. Take Manning's N= 0.013.	**04**
	(c)	Explain different types of landfilling techniques used for disposal of solid waste.	**07**
Q.5	**(a)**	Differentiate between shallow and deep man hole.	**03**

	(b)	Explain different types of traps used in the house drainage system.	**04**
	(c)	Explain different measures for control of noise pollution.	**07**

OR

Q.5	**(a)**	Enlist different types of sewer appurtenances and explain any one in detail.	**03**
	(b)	Give the classification of air pollutants	**04**
	(c)	Explain working of a trickling filter with neat sketch.	**07**

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