Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2024

Subject Code:3160611 Date:17-05-2024

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)**	Compute pH and pOH values of freshly distilled water at 21ºC.	**03**
	(b)	Which are the sources of water? Mention the factors affecting selection of water source.	**04**
	(c)	Draw a neat flow chart of a Domestic Wastewater Treatment Plant. Enlist the function of each unit.	**07**
Q.2	**(a)**	What is necessity of using coagulants in sedimentation? Explain the principle of coagulation.	**03**
	(b)	Enlist different chemical characteristics of water and discuss about Total Dissolved Solids with their environmental significance.	**04**
	(c)	What are the different types of pipes used for water supply? Discuss Asbestos cement (A.C.) pipes and Steel pipes in detail.	**07**
		OR	
	(c)	What is an intake structure? Sketch and explain construction and working of a river intake.	**07**
Q.3	**(a)**	Differentiate between temporary hardness and permanent hardness.	**03**
	(b)	Make a list of various forms of chlorination and explain break point chlorination with graph.	**04**
	(c)	Sketch and explain construction and working of trickling filter.	**07**
		OR	
Q.3	**(a)**	Explain aerobic decomposition and anaerobic decomposition of sewage.	**03**
	(b)	What do you mean by self-purification? Explain with the sketch the oxygen sag curve.	**04**
	(c)	Give comparison between slow sand filter and rapid sand filter.	**07**
Q.4	**(a)**	Define: Garbage, Rubbish and Sewage.	**03**
	(b)	Describe activated sludge process with sketch.	**04**
	(c)	Write a short note on the layout of distribution systems which are commonly used in India.	**07**
		OR	
Q.4	**(a)**	Define (1) Vent pipe (2) Rain water pipe (3) anti siphonage pipe	**03**
	(b)	Enumerate different shapes of sewers and describe circular sewer section.	**04**
	(c)	Explain 1st stage BOD and derive its formula with usual notations $L_t = Lo [1 - (10)^{-Kt}]$	**07**

Q.5	**(a)**	Give classification of Municipal Solid Waste.	**03**
	(b)	Explain design procedure of septic tank.	**04**
	(c)	What are the objectives of Environmental protection Act, 1986. Explain power of central government.	**07**

OR

Q.5	**(a)**	How is Noise measured? Describe the methods of controlling Noise pollution.	**03**
	(b)	Explain primary and secondary air pollutants.	**04**
	(c)	What is sanitary land filling? Describe the different factors to be considered for the site selection of sanitary land filling.	**07**

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