Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–VII EXAMINATION – WINTER 2025

Subject Code: 3160611 Date: 17-11-2025

Subject Name: Environmental Engineering

Time: 02:30 PM TO 05:00 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)	Give the classification of different sources of water.	03
	(b)	Give the sanitary significance of color and turbidity in water	04
	(c)	Explain how can you come to a final quantity of water required to be supplied to a town or city?	07
Q.2	(a)	Explain in brief Arithmetic increase method of population forecasting.	03
	(b)	What are intake towers? Differentiate between ‘dry’ and ‘wet’ intake towers.	04
	(c)	Give IS standards for drinking water in India.	07
		OR	
	(c)	Write a short note on “Rapid sand filter.”	07
Q.3	(a)	Differentiate between “BOD and COD”.	03
	(b)	Define the following terms. (1) Relative stability. (2) population equivalent.	04
	(c)	Draw a complete flow diagram of wastewater treatment plant and describe The function of each unit.	07
		OR	
Q.3	(a)	Explain in brief Aerobic and Anaerobic process	03
	(b)	Write a brief note on various physical properties of waste water	04
	(c)	Write a short note on “Activated sludge process.”	07
Q.4	(a)	Explain in brief Nanhi trap.	03
	(b)	Discuss different factors governing choice of combined system.	04
	(c)	Give comparison between conservancy and water carriage system of sewage disposal.	07
		OR	
Q.4	(a)	Define the following terms. (1) Trap (2) anti-siphonage pipe (3) Sewer	03
	(b)	State the principles of house drainage system.	04
	(c)	Write a short not on “one pipe plumbing system”.	07

Q.5	(a)	Differentiate between “Sound and Noise”	03
	(b)	Define the following terms. (1) Garbage (2) Leachate (3) putrefaction (4) refuse	04
	(c)	Describe effect of Air pollution on man and material.	07

OR

Q.5	(a)	Explain in brief “curb service “as a method of solid waste collection.	03
	(b)	Give classification of solid waste.	04
	(c)	Write a short note on Environment (protection) Act.	07

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Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code: 3160611 Date:25-11-2024

Subject Name: Environmental Engineering

Time: 02:30 PM TO 05:00 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)**	Enlist components of water supply scheme.	**03**
	(b)	Define seasonal fluctuation and design period in water supply scheme.	**04**
	(c)	Define Intake structure, enlist type of intake structure and explain any one in detail.	**07**
Q.2	**(a)**	What is turbidity and enlist various methods to determine turbidity.	**03**
	(b)	Define spigot and socket joint and Reflux valve.	**04**
	(c)	Draw layout of water treatment plant and briefly explain the different treatment unit.	**07**
		OR	
	(c)	What is aeration, enlist different type of aeration, explain any one in detail.	**07**
Q.3	**(a)**	Differentiate between BOD and COD.	**03**
	(b)	Explain Oxygen sag curve with diagram.	**04**
	(c)	Explain the process of sludge digestion and discuss the factors that affect its efficiency in wastewater treatment.	**07**
		OR	
Q.3	**(a)**	Explain sewage sickness.	**03**
	(b)	Write short note on screening in waste water treatment,	**04**
	(c)	What is a trickling filter? Explain its working principle, components, and applications in wastewater treatment.	**07**
Q.4	**(a)**	Define soil pipe and vent pipe.	**03**
	(b)	Differentiate between one pipe system and two pipe system.	**04**
	(c)	Define sewer and explain different type of sewer.	**07**
		OR	
Q.4	**(a)**	Define sewage and sullage.	**03**
	(b)	Write short note on Intercepting trap and catch basin.	**04**
	(c)	Explain methods of collection of sewage with their merits and demits.	**07**
Q.5	**(a)**	Write short note on EIA.	**03**
	(b)	Define Bio medical waste and enlist the sources of Biomedical waste.	**04**
	(c)	Enlist different methods of solid waste disposal and explain any one in detail	**07**
		OR	
Q.5	**(a)**	Explain how Noise pollution affect working efficiency of human being.	**03**
	(b)	Explain effects of air pollutant on human health.	**04**
	(c)	Enlist different air pollutants and explain any two in detail.	**07**

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Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) EXAMINATION – WINTER 2023

Subject Code:3160611 Date:05-12-2023

Subject Name: Environmental Engineering

Time:02:30 PM TO 05:00 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)	What are the requirements of good distribution system?	03
	(b)	What control measures should be taken to prevent the outbreak of waterborne diseases?	04
	(c)	Explain different factors affecting the water demand.	07
Q.2	(a)	The pH of influent and effluent of an Industry is 5.3 and 8.4 respectively. Find average pH of waste water.	03
	(b)	Write site selection criteria for an intake structure.	04
	(c)	Make a list of various forms of chlorination and explain breakpoint chlorination.	07
		OR	
	(c)	Explain working of centrifugal pump with neat sketch.	07
Q.3	(a)	Find the settling velocity of a discrete particles in water, having particle diameter 7×10^{-3} cm and specific gravity 2.65. Assume Reynolds's number less than 0.5. Water temperature is 20^0 C and kinematic viscosity of water at 20^0 is 1.01×10^{-2} cm^2/sec.	03
	(b)	If the 5 day BOD at 20^0 c temperature of a waste water sample is found to be 180 mg/lit, find 3 day BOD at 30^0C temperature of the sample. Assume $K_{D(20)} = 0.1$/day	04
	(c)	Draw a complete flow diagram of waste water treatment plant and describe the function of each unit.	07
		OR	
Q.3	(a)	Explain in brief" Sewage sickness".	03
	(b)	Enlist different biological processes. Differentiate suspended growth process and attached growth process.	04
	(c)	Design a bar screen for a peak average flow of 65 million liters per day	07
Q.4	(a)	Define following. (1) Sullage (2) Rubbish (3) Soil pipe.	03
	(b)	State the requirements of good sewer joint. Enlist common types of joints used in sewer.	04
	(c)	Differentiate between Rapid sand filter and Slow sand filter.	07
		OR	
Q.4	(a)	Why circular sewers are more preferred for the sewerage system?	03
	(b)	Classify the traps according to shape and describe with sketch the same.	04
	(c)	Describe different system of plumbing with neat sketch.	07
Q.5	(a)	What is solid waste management? Enlist its objectives.	03
	(b)	Explain the effect of air pollution on human health.	04
	(c)	Write a short note on "Sanitary land filling".	07

OR

Q.5	(a)	Describe the methods of controlling noise pollution.	03
	(b)	Discuss in brief "EIA".	04
	(c)	Give classification of air pollutants and explain in brief various sources of air pollutants.	07

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Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI(NEW) EXAMINATION – WINTER 2022

Subject Code:3160611 Date:14-12-2022

Subject Name:Environmental Engineering

Time:02:30 PM TO 05:00 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)**	Find out how much acidic is sample pH 3.0 compared to pH 6.0.	**03**
	(b)	Define BOD. Give the significance of BOD test for wastewater.	**04**
	(c)	Draw a neat flow chart of a Domestic Wastewater Treatment Plant. Enlist the function of each unit.	**07**
Q.2	**(a)**	What do you understand by sedimentation with coagulation?	**03**
	(b)	Enlist different chemical characteristics of water and discuss about acidity with their environmental significance.	**04**
	(c)	What are the different types of pipes used for water supply? Discuss cast iron pipes and concrete 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)	Explain break point chlorination.	**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)**	Draw a house drainage plan for a 3BHK detached bungalow	**03**
	(b)	Describe trickling filter with sketch.	**04**
	(c)	Explain 1^{st} stage BOD and derive its formula with usual notations $L_t = Lo [1 - (10)^{-Kt}]$	**07**
Q.5	**(a)**	Write a short note on composting.	**03**
	(b)	Explain design procedure of septic tank.	**04**
	(c)	Discuss different methods of sewage disposal.	**07**
		OR	
Q.5	**(a)**	What is noise pollution? State the sources of it.	**03**
	(b)	Explain the effects of air pollution on men, material and animals.	**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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