Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV EXAMINATION – SUMMER 2025

Subject Code:3141312 Date:19-05-2025

Subject Name: Municipal 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)**	Give the sequence of units to be installed for a typical water Supply project.	**03**
	(b)	Distinguish between continuous supply system and intermittent supply system.	**04**
	(c)	Enlist and explain the various factors affecting the rate of demand of water.	**07**
Q.2	**(a)**	Draw a neat sketch of centrifugal pump and shows all the component parts of it.	**03**
	(b)	A city has a population of 60000. It is to be supplied with water at 250LPCD. Calculate B.H.P. of motor to raise the water to an overhead tank 60 m high. The length and diameter of rising main are 300 m and 30 cm respectively. The efficiency of motor is 95% and that of pump is 60%. Assume f' = 0.04 and peak hour demand as 1.50 times the average demand. Unit weight of water y = 1000/m^3	**04**
	(c)	Write a short note on reservoir intake with neat sketch.	**07**
		OR	
	(c)	Discuss canal intake with sketch.	**07**
Q.3	**(a)**	Define trap. Give the classification of trap according to the shape.	**03**
	(b)	Draw a dead end distribution system and highlight its advantages.	**04**
	(c)	Enlist and explain the steps for lying of water supply pipes.	**07**
		OR	
Q.3	**(a)**	Define following terms: 1. Sullage 2. Intercepting Sewer 3. Invert	**03**
	(b)	Differentiate between conservancy and water carriage system.	**04**
	(c)	Enlist and explain five patterns of collection system of sewage.	**07**
Q.4	**(a)**	Enlist the factors to be considered while selecting the materials for sewers and explain any one in brief.	**03**
	(b)	Calculate the design flow for which a separate sewer is to be designed with given rate of supply of water is 255 LPCD and for a population of 1000 people.	**04**
	(c)	Enlist Non-circular shapes of sewers and explain following with sketch: 1. Semi-Elliptical 2. Horse-Shoe Section 3. Basket handle	**07**

OR

Q.4	**(a)**	What do you mean by surface drains? Explain semi circular surface drain with drawing.	**03**
	(b)	Define sewer Appurtenances and draw a sketch of Drop manhole.	**04**
	(c)	Differentiate between followings: 1. Cleanouts and inlets. 2. Leaping weir and overflow weir	**07**
Q.5	**(a)**	Describe sluice valve with diagram.	**03**
	(b)	Discuss about collar joint.	**04**
	(c)	Differentiate between combined sewerage system and separate sewerage system.	**07**

OR

Q.5	**(a)**	Differentiate between gravity and pumping system.	**03**
	(b)	Explain the significance of minimum and maximum velocities of flow in the design of sewers.	**04**
	(c)	Enlist and explain the factors affecting on the quantity of storm sewage.	**07**

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