

Enrollment No./Seat No.:

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**Bachelor of Engineering - SEMESTER - III EXAMINATION - WINTER 2025**

**Subject Code: BE03013011**

**Date: 15-12-2025**

**Subject Name: Water Supply and Sewerage System**

**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.**

	<b>Marks</b>
<b>Q.1 (a)</b> List the different types of water sources used in water supply systems.	<b>03</b>
<b>(b)</b> Compare surface water and groundwater sources with respect to quality and reliability.	<b>04</b>
<b>(c)</b> Discuss the importance of water quality parameters in selecting a water source.	<b>07</b>
<b>Q.2 (a)</b> State three factors that affect the selection of a water source.	<b>03</b>
<b>(b)</b> Illustrate with a neat sketch the intake structure for a river source.	<b>04</b>
<b>(c)</b> Analyze the limitations of surface water sources for urban water supply with case examples.	<b>07</b>
<b>OR</b>	
<b>(c)</b> Draw layout of water distribution system and discuss units with its important.	<b>07</b>
<b>Q.3 (a)</b> State the need of pumping in a water supply scheme.	<b>03</b>
<b>(b)</b> Compare dead-end and grid iron distribution layouts.	<b>04</b>
<b>(c)</b> Discuss the working and selection criteria of different pumping systems for municipal water supply.	<b>07</b>
<b>OR</b>	
<b>(a)</b> List any the types of valves used in a distribution system.	<b>03</b>
<b>(b)</b> Define how to Calculate the horse power (HP) required for a pump.	<b>04</b>
<b>(c)</b> Analyze the role of valves and fittings in minimizing water loss in urban distribution systems.	<b>07</b>
<b>Q.4 (a)</b> Define sanitary sewage and storm sewage.	<b>03</b>
<b>(b)</b> Illustrate different sewer sections with neat sketches.	<b>04</b>
<b>(c)</b> Discuss the importance of hydraulic testing during sewer construction.	<b>07</b>
<b>OR</b>	
<b>(a)</b> State any three sewer cleaning devices and materials used for sewer construction.	<b>03</b>

- (b) Explain the methods of maintenance of sewers. 04
- (c) Discuss the problems of corrosion in sewers and suggest preventive measures. 07
- Q.5** (a) List different types of plumbing systems. 03
- (b) Explain the role of traps in plumbing with sketches. 04
- (c) Differentiate between combined and separate sewerage systems. 07

**OR**

- (a) Define sewer appurtenances and give two examples. 03
- (b) Describe the working of an inverted siphon with a neat sketch. 04
- (c) Analyze the role of ventilation and manhole in sewer systems and its impact on public health. 07

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