

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2023****Subject Code:3141312****Date:24-01-2024****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     |
|------------|--|-----------|
| <b>Q.1</b> | (a) Draw a neat flow diagram of water supply scheme.   | <b>03</b> |
|            | (b) Define the following terms: [i] Invert [ii] Grey water [iii] Sewage [iv] Manhole   | <b>04</b> |
|            | (c) Write a short note on Importance and reliability of Water works.   | <b>07</b> |
| <b>Q.2</b> | (a) Write a short note on ideal population growth curve.   | <b>03</b> |
|            | (b) Differentiate between combined and separate system of sewerage.  | <b>04</b> |
|            | (c) What are the factors on which location of intake works depend? Draw a neat sketch of lake intake and explain its working.                  | <b>07</b> |
|            | <b>OR</b>  |           |
|            | (c) Prepare a list of different types of valves used in water supply and explain any two in brief with neat sketch.                            | <b>07</b> |
| <b>Q.3</b> | (a) Differentiate between gravity system and pressurized system of water supply.   | <b>03</b> |
|            | (b) Enlist the requirements of good meter.   | <b>04</b> |
|            | (c) Enlist different types of layouts for water distribution system and explain any two in detail.   | <b>07</b> |
|            | <b>OR</b>  |           |
| <b>Q.3</b> | (a) Define the following terms: [i] Porosity [ii] Water Bearing stratum [iii] Aquifer  | <b>03</b> |
|            | (b) Write down the procedure of laying of water distribution pipe.   | <b>04</b> |
|            | (c) Prepare a list of pumps used in water supply and explain any two with sketch.  | <b>07</b> |
| <b>Q.4</b> | (a) What do you understand by continuous and intermittent supply system of water?  | <b>03</b> |
|            | (b) What should be the characteristics of materials to be used for sewer construction?   | <b>04</b> |
|            | (c) How does the sewage flow vary from hour to hour, day to day and season to season in what way does this affect the design of sewage system? | <b>07</b> |
|            | <b>OR</b>  |           |
| <b>Q.4</b> | (a) Define the following terms: [i] Self cleansing velocity [ii] Dry weather flow [iii] Soil pipe  | <b>03</b> |
|            | (b) Write a short note on fire hydrant.  | <b>04</b> |
|            | (c) Write a note on sewer sections. Illustrate your answer with the help of neat sketches  | <b>07</b> |

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| <b>Q.5</b> | <b>(a)</b> | What are the requirements of a good trap?                                      | <b>03</b> |
|            | <b>(b)</b> | Explain the hydrostatic test for laying of new sewer pipelines.                | <b>04</b> |
|            | <b>(c)</b> | List of various sewer appurtenances and explain drop manhole with neat sketch. | <b>07</b> |

**OR**

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|------------|------------|--|-----------|
| <b>Q.5</b> | <b>(a)</b> | Write a short note on maintenance and cleaning of Sewers.                    | <b>03</b> |
|            | <b>(b)</b> | Enlist various types of Sewer joints and explain anyone.                     | <b>04</b> |
|            | <b>(c)</b> | Enlist various systems used in House Plumbing and explain any one in detail. | <b>07</b> |

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