Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BE - SEMESTER–V(New) • EXAMINATION – WINTER 2016**

**Subject Code:2151306** **Date:02/12/2016**

**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.**

**Q.1 Short Questions** **14**

**1** Egg- shapes sewers were considered suitable for
(A)Combined sewerage system
(B)Separate Sewage System
(C) Partially separate system
(D)Partially combine system

**2** In hilly region to keep the velocity of flow in sewer less than non-scouring velocity following structure is provided
(A) Deep manhole
(B) Drop manhole
(C) Lamp hole
(D) Shallow manhole

**3** The IS code for Drinking water standard is IS:
(A) 9001
(B) 14000
(C) 10500
(D) 15456

**4** _____ are the secondary feeders connected to either side of the supply main
(A) Minor distributors
(B) Branch pipe
(C) Service pipe
(D) Sub mains

**5** A separate sewer carries all the liquid discharge except:
(A) Industrial wastewater
(B) Domestic waste water
(C) Strom water
(D) infiltration

**6** The purpose of providing traps the drainage system is:
(A) To collect the wastewater from bathroom
(B) To prevent the escape of foul air or gases through drains
(C) To supply the water into the bathroom
(D) To remove the oil and grease from wastewater

**7** Mass curve is used to determine
(A) Demand from reservoir
(B) Losses from reservoir
(C) Storage capacity of reservoir
(D) Inflow to the reservoir

**8** _____ is the portion of rainwater which flows over the surface of the ground as storm water

(A) Percolation
(B) Runoff
(C) Evaporation
(D) Evapo transpiration

**9** Intake structure should be provided at the _____ of a city

(A) Upstream
(B) Down stream
(C) Center
(D) Any where

**10** _____pumps required no valves and self priming

(A) Rotary
(B) Reciprocating
(C) Centrifugal
(D) Air lift

**11** _____ system of water supply ensures constant pressure at all place

(A) Grid iron
(B) Dead end
(C) Ring
(D) Radial

**12** Define invert.

**13** Define porosity

**14** Define Anti-siphonage pipe

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|---|---|---|---|
| **Q.2** | **(a)** | Differentiate between manhole and drop manhole. | **03** |
| | **(b)** | Enlist the safety equipments used for sewer maintenance works with their intended use. | **04** |
| | **(c)** | Why is it necessary to ventilate sewers and how it is done? | **07** |
| | | **OR** | |
| | **(c)** | Enlist and explain the factors affecting the quantity of storm water. | **07** |
| **Q.3** | **(a)** | What precautions should be taken to prevent the explosions in sewers? | **03** |
| | **(b)** | What should be the characteristics of materials to be used for sewer construction? | **04** |
| | **(c)** | What are the difference between drains and sewers? What are the requirements of an ideal drain section? | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Define the following terms (i) self cleaning velocity (ii) velocity of flow (iii) limiting velocity | **03** |
| | **(b)** | Enlist the main causes of damage to the sewers. | **04** |
| | **(c)** | Write a short note on “Various methods of collection for sanitation works” | **07** |
| **Q.4** | **(a)** | Why water work should be reliable? Explain in brief. | **03** |
| | **(b)** | Enlist and explain the factors affecting the losses and wastes of water in the distribution system. | **04** |
| | **(c)** | What is the function of hydrants in the distribution system? With the help of neat sketch describe hydrants. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Define intake work. Enlist the factors affecting the design of an intake structure. | **03** |
| | **(b)** | List down the requirements of good distribution system. | **04** |
| | **(c)** | What do you understand by continuous and intermittent supply system of water? Compare both in respect to their merits and demerits. | **07** |

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|---|---|---|---|
| **Q.5** | **(a)** | Classify the pumps based on their principles of operation & power requirement. | **03** |
| | **(b)** | What points should be kept in mind while selecting a site for intake works? | **04** |
| | **(c)** | Prepare a list of pipe-joints used in water supply and explain spigot and socket joint with sketch. | **07** |

**OR**

| | | | |
|---|---|---|---|
| **Q.5** | **(a)** | What are the various factors which directly affect the per capita demand of a town? | **03** |
| | **(b)** | Explain rotary pumps with their advantages & disadvantages. | **04** |
| | **(c)** | Discuss the merits and demerits of river water source and ground water source for the water supply scheme for a town. | **07** |

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