

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

# GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. Sem-VI Examination May- 2011

Subject code: 161301

Subject Name: Municipal Engineering

Date: 16/05/2011

Time: 10.30 am – 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 (a)** Differentiate between: **07**
- (i) Combined Sewerage system and Separate sewerage system.
  - (ii) Storm water and sanitary sewage.
  - (iii) Infiltration and inflow.

- (b)** Using the following observations, plot a mass diagram and determine the storage required to meet a demand of  $2\text{m}^3/\text{s}$  for the period May 1989 to April 1990: **07**

Month	Accumulated Volume $\text{m}^3$	Month	Accumulated Volume $\text{m}^3$
May	120	November	550
June	175	December	750
July	215	January	900
August	250	February	1100
September	280	March	3000
October	370	April	3250

- Q.2 (a)** What are the factors on which the location of intake works depends? Draw a neat sketch of River intake and explain its working. **07**
- (b)** Enlist and explain the factors on which the demand of water depends. **07**

**OR**

- (b)** Give the breakup of the total per capita water demand. Explain each type of water demand. **07**

- Q.3 (a)** Enlist the distribution systems and explain any one with a neat sketch, enlisting its merits and demerits. **07**
- (b)** Explain the different systems of water supply. **07**

**OR**

- Q.3 (a)** Draw a neat sketch and explain the construction and working of gate valve. **07**
- (b)** Compare the surface water and ground water sources based on quantity and quality. **07**

**Q.4 (a)** With the help of a neat sketch , write down the construction and functions of a drop manhole. **07**

**(b)** Explain the rational method to find out the storm water flow to the sewer. **07**

A city having area of 300 ha consists of areas having following types of areas:

Type of surface	% Area	Run off coefficient
Roofs	20	0.85
Open ground	15	0.2
Lawns	30	0.25
Road	20	0.3
Pavements	15	0.6

Calculate the runoff coefficient and if the intensity of rain fall is 50mm/hr calculate the quantity of rain water which will reach the sewer.

**OR**

**Q.4 (a)** Enlist the different storm relief works and explain any one with sketch. **07**

**(b)** Prepare a list of different types of pumps used in water supply. **07**  
Explain any one.

**Q.5 (a)** A 600 mm dia pipe of glazed vary smooth stoneware is laid to 1 in 1000 runs full. Find the velocity and discharge per sec and chazy's constant C. **07**  
Take  $n = 0.010$ .

**(b)** Write a note on different type of sewer joints. **07**

**OR**

**Q.5 (a)** Write down the procedure for laying of sewers pipes. **07**

**(b)** Enlist the different types of material for sewers. Explain any two in detail. **07**

\*\*\*\*\*