

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. Sem. – III - Examination –June- 2011****Subject code:731201****Subject Name: Water supply and Drainage****Date: 03/06/2011****Time:10:30am. to 1:00pm.****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)** Which important criteria are to be taken in to consideration while planning a water supply scheme? **07**
- (b)** Which types of data are to be collected for planning of a water supply project? What is significance of each data? **07**
- Q.2 (a)** Draw neat sketch of a typical river intake and state its design criteria. **07**
- (b)** Write short note on radial collector wells. **07**
- OR**
- (b)** Write short note on 'Design of underground reservoir' **07**
- Q.3 (a)** How will you determine the capacity of the elevated service reservoir? **07**
- (b)** Enlist various types of pumps used in water supply projects. How the capacity of a pump is determined? **07**
- OR**
- Q.3 (a)** Describe any one type of pump used in water supply project. State its characteristics advantages and disadvantages. **07**
- (b)** Explain Hardy cross method of analysis of pipe network. **07**
- Q.4 (a)** State the assumptions made in Hardy cross method. **07**
- (b)** State modern methods of measurement of flow in channels and pipe lines. Explain the principle of each in short. **07**
- OR**
- Q.4 (a)** Enlist various pipe appurtenances sketch any one. **07**
- (b)** Describe the procedure for hydraulic design of storm sewer. **07**
- OR**
- Q.5 (a)** Explain and state the significance of following terms in details. **07**
(i) Specific energy. (ii) Froude's number.
- (b)** Distinguish between following terms (i) Super critical flow and sub critical flow. (ii) Uniform flow and non uniform flow. **07**
- OR**
- Q.5 (a)** State the expressions for losses in pipes in terms of $v^2/2g$. for (i) bends (ii) Valves (iii) Elbows (iv) Sudden expansion (v) Sudden contraction **07**
- (b)** Calculate the diameter and discharge of a circular sewer laid at a slope of 1 in 400 when it is running half full and with a velocity of 1.9m/s. (Assume Manning's constant as 0.012) **07**
