

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Sem-III Regular Examination January 2011

Subject code: 731201

Subject Name: Water Supply and Drainage

Date: 08 /01 /2011

Time: 02.30 pm – 05.00 pm

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

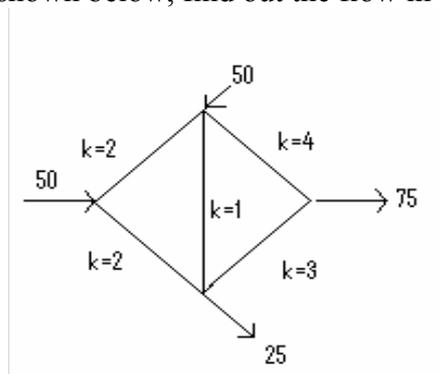
- Q.1** (a) Write detailed note on planning of water supply scheme 07
 (b) State the functions of service reservoir and sketch the sectional elevation of the same showing various appurtenances. 07

- Q.2** (a) Write note on “intake” explain its various components with sketch. 07
 (b) Which important points are considered while selecting the pump for water supply scheme? What type of pumps will you recommended for the following? 07
 (i) Raw Water pumping station lifting water from a hybrid surface stream in plains through moderate height
 (ii) Forcing water directly in to distributions

OR

- (b) Describe various types of pumps used for water works. 07

- Q.3** (a) Discuss radial collector wells and their suitability in water supply scheme 07
 (b) For the pipe network shown below, find out the flow in each pipe 07



Use Hardy Cross method, Head loss may be assumed as $h_L = KQ^n$ Flow in the pipe is turbulent

OR

- Q.3** (a) Discuss Hardy Cross method for analysis of pipe network 07
 (b) How will you estimate the quantity of water to be stored in service reservoir? Explain with example. 07

- Q.4** (a) Describe any one device for measurement of flow of water in pipes. 07
 (b) Write note on “Fire hydrants” 07

OR

- Q.4** (a) Explain with sketch water meters 07
 (b) Explain with sketch the pipe flow measurement with venturimeter 07

- Q.5** (a) Describe various formulas for determining storm water runoff. State the limitations of each one 07
 (b) The area of town is 60 hectares and coefficient of runoff for that area is 0.60 and the time of concentration of the design rain is 30 minutes. Calculate the discharge for which the storm sewer should be designed 07

OR

- Q.5 (a)** Explain the following **07**
- (i) Specific energy
 - (ii) Super critical and sub critical flow
 - (iii) Uniform and non uniform flow
- (b)** Define the following terms. **07**
- Froude's number
 - Hydraulic jump
 - Steady and unsteady flow.
