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## GUJARAT TECHNOLOGICAL UNIVERSITY M. E. - SEMESTER – III • EXAMINATION – SUMMER • 2013

Subject code: 731201 Date: 13-05-2013 Subject Name: Water Supply and Drainage 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. (a) State the importance and necessity of water supply scheme. **07** Q.1 **(b)** Briefly describe various types of service reservoir. **07 Q.2** Discuss the different factors which are taken into con **07** (a) during the preparation of a water supply project. Briefly discuss various factors affecting losses and wastes in the distribution 07 system. **(b)** Describe the possible source of water for public water supply for a city. What 07 are the factors which govern the final choice of the source? Q.3 What are intakes? What points should be kept in mind while selecting a site for (a) **07** intake works? **(b)** Write a note on 'Radial Collector Well'. 07 **Q.3** What factors affect the design of an intake structure? Describe a river intake 07 with the help of a neat sketch. **(b)** Describe any one device used for measurement of flow of water in pipe lines. 07 **Q.4** Write short note on 'Hardy-Cross Method'. 07 **(b)** Describe the circumstances under which pumping of water is required. 07 Classify pumps. Describe impulse pump; also state its advantages and **Q.4 07** disadvantages. Write short notes on (i) Sluice Valves (ii) Pressure Relief Valves. **07 (b)** How would you estimate the quantity of Storm-Water? Explain the importance Q.5 07 of time of concentration in storm run-off studies. A sewer, 30 cm in diameter is laid at a gradient of 1 100. Using N = 0.013 in 07 manning's formula, calculate the velocity, discharge and Chezy's co-efficient when the sewer is running full. OR (a) How the water consumed by the consumers is measured? Describe any suitable **Q.5 07** device for it. **(b)** Give various empirical formulae for determining storm 07 flow in sewers, explain their applicability or suitability.

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