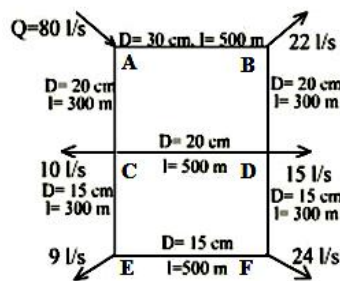


GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – I • EXAMINATION – WINTER • 2014****Subject code: 2713306****Date: 12-01-2015****Subject Name: Water Supply and Drainage****Time: 02:30 pm - 05:00 pm****Total Marks: 70****Instructions:**

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

- Q.1** (a) Explain the requirement of feasibility study for water supply project. Enlist various feasibility studies carried out in this regard. **07**
- (b) Enlist and discuss various population forecasting methods used for the planning of Water Supply Project. **07**
- Q.2** (a) Write Short note on: **07**
(1) SCADA (2) Elevated Service Reservoir
- (b) Discuss various factors affecting the design of intake structure and its location. **07**
- OR**
- (b) Explain the significance of following for the Water Supply Project **07**
(1) Engineering survey (2) Design Period
- Q.3** (a) Describe Road Side Drainage an Integral Part of Urban Storm water Drainage and its design consideration in brief. **07**
- (b) Mention the recommended guidelines given by CPHEEO for the following criteria in the design of distribution system **07**
(1) Peak Factor (2) Service Reservoir (3) Balancing Reservoir
- OR**
- Q.3** (a) Explain EPANET and its following hydraulic simulation features **07**
(1) Head losses in pipe segment (2) Head flow Curve for Pumps
- (b) Calculate the head losses and the corrected flows in the various pipes of a distribution network as shown in figure. The diameters and the lengths of the pipes used are given against each pipe. Compute corrected flows in Loop ABCD after one corrections. Use Hardy Cross Method. **07**



- Q.4** (a) Explain the function of Radial Collector well with neat sketch. Also Justify that Radial collector well as a sustainable source of water supply **07**
- (b) Explain the phenomena of storm water detention, components of storm water detention and role of storm water detention pond. **07**
- OR**
- Q.4** (a) Discuss the term Storm Sewer. Explain the rational and minimum cost design method of designing the storm sewer. **07**
- (b) Enlist and explain various appurtenances used in water supply distribution. **07**

- Q.5** **(a)** Enlist various losses of pipes considered for the design of water supply network. **07**
 Also mention the suggestion to reduce the losses.
- (b)** Discuss the various purposes of pumps to be employed in water supply project. **07**
 Also discuss the displacement pump and velocity pump in detail.
- OR**
- Q.5** **(a)** Enlist and explain various formulae for determining storm water runoff. **07**
 (b) Enlist various types of pipe material used for water supply system and mention **07**
 their advantages and disadvantages
