

**JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT**  
**T3- EXAMINATION (December - 2017)**  
**B. Tech. (V- SEM.)**

COURSE CODE: 10B11CE514

MAX. MARKS: 35

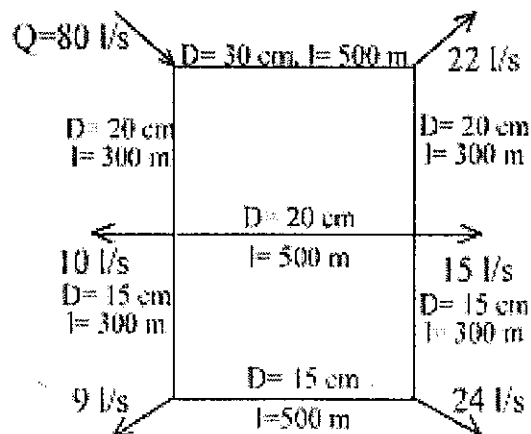
COURSE NAME: Water Supply Engineering

COURSE CREDIT: 4

MAX. TIME: 2 HRS

**Note: Attempt all questions. Assume suitable data if required. Carrying of mobile phone during examinations will be treated as case of unfair means**

- 1 a) Explain the method for preparation of filter sand to be used in filtration system. (3)
- 1 b) Design a RSF unit to treat a flow of 20MLD. Assume suitable design parameters. (7)
- 2 a) Discuss the advantages and disadvantages of Grid Iron System for water distribution network. (3)
- 2 b) Calculate the head losses and corrected flows in the various pipes of distribution network as shown in the following figure. The diameters and the lengths of the pipes used are given against each pipe. Compute the corrected flows after *two* iterations. (7)



- 3 a) A town is to be treated for a flow of 50MLD. The detention period of the tank is 1.5 hours with a flow velocity of 25cm/sec. With a neat sketch; design a baffle wall sedimentation tank (5)
- 3 b) Water in a town having a flow of 40MLD is to be treated using coagulation flocculation process. The alum dose is 30mg/l. The alkalinity of raw water is determined to be 5.5 mg/l of CaCO<sub>3</sub>. With appropriate chemical reactions; determine the annual requirement of alum needed for the waterworks. Assume molecular weights as [Ca = 40, C = 12, S = 32, O = 16, H = 1, Al = 27] (5)
- 4 a) The chlorine requirement for treating a flow of 35000 m<sup>3</sup>/d is 12 kg/day. The residual after 10 minute of contact time is 0.25 mg/l. Determine the chlorine dosage in mg/l and chlorine demand of water (2)
- 4 b) In a neat tabular format, list the chloramines formed for different pH ranges. (3)