

GANPAT UNIVERSITY**B. Tech. Semester Vth Civil Engineering****Regular Examination – November-December : 2011****C- 505: Environmental Engineering - I****Time: 3 Hours****Total Marks: 70****Instructions:** - (1) Answer to the two sections must be written in **separate** answer books.(2) Figures to the right indicate **full** marks.

(3) Assume suitable data if required.

Section – I

- 1 (A) What do you understand by term “water demand”? And explain different water demand in detail. (6)
- (B) Explain various factors affecting water demand in detail. (6)

OR

- 1 (A) Enlist different population forecasting methods. And explain graphical extension methods and graphical compression methods. (6)
- (B) The following data shows the variation in population of a town from 1940 to 1980. Find out the population of in decades 1986, 1996, 2006, 2016 by using decrease growth rate method. (6)

Year	1936	1946	1956	1966	1976
Population	25000	28000	32500	40000	45000

- 2 (A) How can you remove fluoride contain from rural water? (6)
- (B) Enlist different physical, chemical, and bacteriological properties of water. (5)

OR

- 2 (A) Compute the fire demand for a city having population of 500000 by using various formula of fire demand. (6)
- (B) What is MPN? Give the importance of MPN test. (5)

3 **Attempt the following questions. (any three)** (5)

- (A) Explain Rain water harvesting. (12)
- (B) Factors affecting water supply projects.
- (C) Water supply Project estimation.
- (D) Water supply project report.

Section – II

- 4 (A) Briefly explain different types of mixing devices. (6)

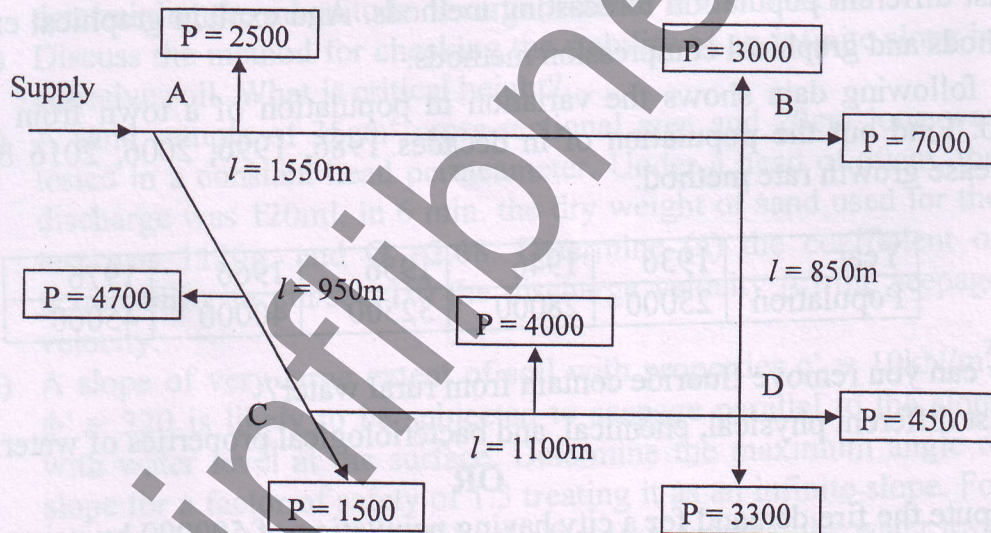
- (B) Design a Rectangular sedimentation tank fitted with mechanical sludge remover for water work which has to supply daily 5.2 million liters of water to the town. The detention period in the tank for water is 5.5 hours and depth of water in the tank may be assumed as 4.3m. (Check for SLR and WLR).

OR

- 4 (A) Briefly explain impact of technology on environment. (6)
 (B) Design Circular sedimentation tank to treat 1.4 MLD. The detention period may be assumed to be 2 hours. Draw neat figure of Circular sedimentation tank. (6)
 (Check for SLR and WLR)
- 5 (A) Explain different types of aerators. (6)
 (B) Explain methods of disinfection. (5)

OR

- 5 (A) Describe the working of Rapid Sand filter with neat sketch. (6)
 (B) Describe types of water supply system. (5)
- 6 Attempt the following questions: (12)
 (A) Determine the sizes of the pipes in the network given in the figure. The average water is to be supplied at 200 liters/day/capita. The maximum rate of supply is 2.7 times the average demand. (Use Hardy-Cross method)



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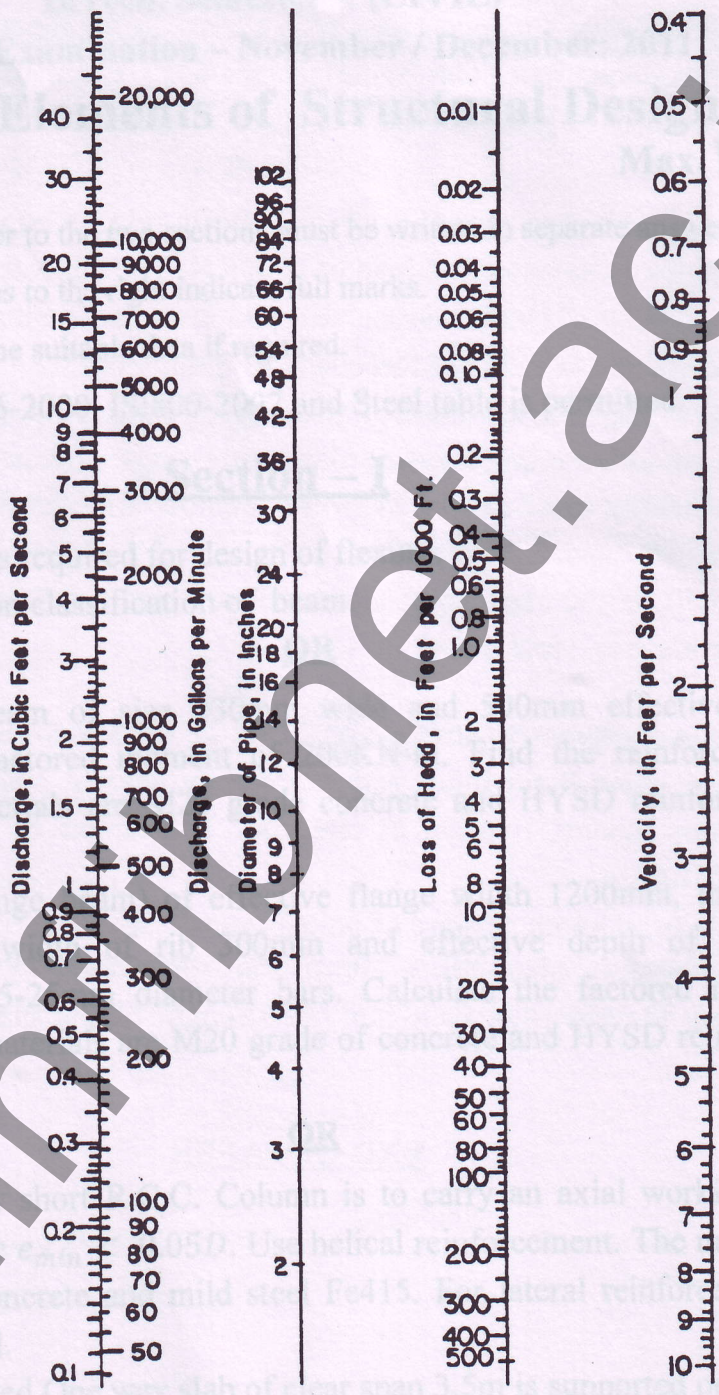


Figure 8-2. Nomograph for Hazen-Williams formula in which $C = 100$.