

Dec.-22-0179

CE-505 (Environmental Engineering-I)

Civil Engineering

B.Tech. 5th (CBCS)

Time : 3 Hours

Max. Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt four questions selecting one question from Section A, B, C and D. Section E is compulsory.

**SECTION - A**

- Define intake as referred in a water supply system and distinguish between dry intake and wet intake. Also list the important factors governing the selection of site for the selection of an intake. (10)
- (a) With the help of neat sketches, explain Infiltration gallery and Infiltration well. (5)  
(b) Differentiate clearly between gravity spring and Artesian spring. (5)

**SECTION - B**

- The data of demand of a town is as shown below: Calculate the storage capacity, if the pumping into the tank is restricted from 0600 hrs to 1800 hrs. (10)

Time (hrs)	Demand (Million Litres)
00-04	0.38
04-08	0.82
08-12	1.60
12-16	0.75
16-20	0.75
20-24	0.43

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CE-505

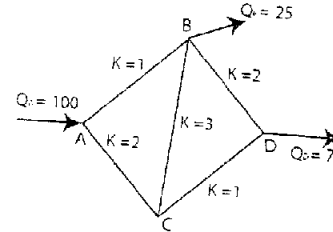
- Explain in detail about water demands and its variations. (10)

**SECTION - C**

- List out common methods of disinfection usually employed in water treatment. Determine the annual requirement of bleaching powder to treat 6MLD of water which requires 0.3ppm of chlorine. The available chlorine in bleaching powder was found to be 25% only. (10)
- Explain various types of chlorination in water treatment. (10)

**SECTION - D**

- Determine the distribution of flow in the pipe network shown in figure. The head loss  $h_L$ , may be assumed as  $KQ^2$ . The flow is turbulent and pipes are rough. The value of  $k$  for each pipe is indicated in the figure. Use Hardy-Cross method. (10)



- Enlist various pipe appurtenances in a water distribution network and with neat sketches explain any two of them. (10)

**SECTION - E**  
(Compulsory Question)

- (a) How do you estimate the water demand for an 'industrial town'?  
(b) Compare the applicability of geometric progression method and arithmetic progression method.

[P.T.O.]

- (c) "Quantity and quality are equal considerations in water supply scheme planning" Comment.
- (d) What is meant by 'development of wells'?
- (e) What is meant by dynamic head in case of pumps?
- (f) What is meant by MPN?
- (g) What is meant by economical diameter of pumping main?
- (h) State the Hazen Williams formula and explain the terms.
- (i) Differentiate between water softening and demineralization.
- (j) How does the per capita demand vary in planning of rural water supply and urban water supply in India?  
(10×2=20)