Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(CE) (2011 Onwards) (Sem.–5)

ENVIRONMENTAL ENGINEERING–I

Subject Code : BTCE-505

M.Code : 70516

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Q1 Answer briefly :

a) How do you estimate the water demand for an 'industrial town'?

b) Compare the applicability of geometric progression method and arithmetic progression method.

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?

SECTION-B

Q2 Sketch and explain the components of a river intake.

Q3 Explain the importance of Turbidity and Conductivity as water quality parameters. What kind of impurities they generally indicate?

Q4 List the suitability and criteria for choosing different types of pumps used in water supply.

Q5 Draw and explain the components and working of a rapid sand filter.

Q6 For a 40,000 m^3/d water plant an alum dosage of 42 mg/L with flocculation at a $G.t$ value of 4.32×10^4 that produces optimal results. If the water temperature is 20°C, determine the requirement of alum per week and volume of the flocculator tank.

SECTION-C

Q7 The data of demand of a town is as shown below:

Time (hrs)	Demand (Million Litres)
00-04	0.36
04-08	0.84
08-12	1.50
12-16	0.85
16-20	0.73
20-24	0.45

Calculate the storage capacity, if the pumping into the tank is restricted from 0600 hrs to 1800 hrs.

Q8 What are the objectives of disinfection of water? What are the qualities of a good disinfectant? Compare the properties of **any two** disinfectants.

Q9 Write short notes clearly differentiating the following terms as applied to water supply.

a) Intermittent supply and continuous supply.

b) Single supply and dual supply.

c) Metered and non-metered supply.

d) Water quality criteria and standards.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.