BICE-014

B.Tech. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

00576

June, 2015

BICE-014 : ENVIRONMENTAL ENGINEERING – I

Time : 3 hours *Maximum Marks : 70*

Note : Answer any five questions. All questions carry equal marks.

1. (a) What is meant by variation in the rate of demand ? What are the effects of these variations on the design of various units of a water supply scheme ? 7

    (b) What is meant by hardness ? Explain any one method of removal of hardness of boiler feed water. 7

2. (a) Name the different types of pumps used generally in water supply scheme. What are the factors on which their selection depends ? 7

    (b) What is an Intake ? Explain with a neat sketch, a River Intake. 7

3. (a) What do you understand by continuous and intermittent systems of water supply ? What are their relative advantages and disadvantages ? *7*

(b) How will you determine the storage capacity of a reservoir using mass curve method ? *7*

4. Enumerate and discuss in brief the various physical, chemical and bacterial characteristics for testing of raw water supplies. What steps would you take in order to make them fit for drinking ? *14*

5. (a) What are the chemicals used for coagulation ? Discuss their comparative merits and demerits. *7*

(b) What are the different types of chlorination in water treatment ? Give the importance of break water chlorination. *7*

6. (a) Explain the techniques of dissolved solids removal from water. *7*

(b) Describe 'Zeolite process' of softening water in detail. *7*

7. Write notes on the following : 2×7=14

   (a) Testing of water mains

   (b) Dams, their types and the selection of site

8. Write short notes on any *four* of the following : $4 \times 3\frac{1}{2} = 14$

   (a) Water Aeration

   (b) Equivalent pipe in distribution network analysis

   (c) BOD and COD

   (d) Water-borne diseases

   (e) Leak detection in pipe network

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