No. of Printed Pages : 3

BICE-014

B.Tech. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

00635

December, 2014

BICE-014 : ENVIRONMENTAL ENGINEERING – I

Time : 3 hours *Maximum Marks : 70*

Note : *Answer any* ***five*** *questions. All questions carry equal marks. Assume missing data, if any.*

1. (a) What are the purposes for water analysis of raw water and purified water ? Enumerate the tests conducted for the examination of water. 7

(b) A city has the following recorded population :

Year	1961	1981	2001
Population	50,000	1,10,000	1,60,000

Estimate : (i) the saturation population and (ii) the expected population in 2021 by geometric mean method. 7

2. (a) Explain with the help of neat sketches the working of a jet pump. 7

(b) Discuss the advantages and disadvantages of various types of pipes used in water supply. 7

3. (a) Discuss in brief, the methods of laying out distribution system. 7

(b) Explain the Hardy cross method of solving the network, by balancing heads by correcting flow. 7

4. (a) A settling tank is designed for an overflow rate of 4000 litres per m^2 per hour. What percentage of particles of diameter 0·05 mm will be removed in this tank at 10°C ? 7

(b) What do you understand by coagulation and flocculation ? Enumerate the various types of coagulants used in water treatment. 7

5. (a) What do you understand by defluoridization ? Explain the various methods of removing excess fluorides from water. 7

(b) What are the causes of tastes and odours in water available from various sources ? Enumerate the methods of their removal. 7

6. Write notes on any ***two*** of the following : $2 \times 7 = 14$

(a) Types of pumps and their choice

(b) Chlorine demand and forms of application

(c) Units operations in water treatment with neat layout sketch

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

(a) Water-borne diseases

(b) Purposes of bacteriological examination of water

(c) Types of settlings

(d) Ozone treatment

(e) Reflux valve

(f) Standards of purified water