

B. TECH. (CIVIL ENGINEERING)
BTCLEVI

Term-End Examination

June, 2014

BICE-014 : ENVIRONMENTAL ENGINEERING-I

Time : 3 hours

Maximum Marks : 70

- Note :**
- (i) *Answer any five questions.*
 - (ii) *All questions carry equal marks.*
 - (iii) *Assume missing data if any.*

1. (a) Discuss important requirements of water for domestic use. 4
- (b) Enumerate the factors affecting population growth. Determine the population of the city in 2011 by : 10
- (i) arithmetical increase method and
 - (ii) incremental increase method for following data :

Year	1931	1941	1951	1961	1971	1981	1991
Population	12,000	16,500	26,800	41,500	57,500	68,000	74,100

2. (a) Draw a neat sketch of a typical installation for centrifugal pump used for pumping out water from a sump. 7
- (b) Explain in brief, the different types of valves used in water supply system with their inherent merits and demerits. 7

3. (a) Write the requirements for a good distribution system. 6
 (b) Discuss in brief the various methods of water distribution system. Which method would you prefer for your town and give justification ? 8
4. (a) What do you understand by treatment of water ? Give an outline of various processes adopted for treatment of water for drinking purpose. 7
 (b) Find the dimensions of a rectangular sedimentation basin for the following data : 7
 (i) Volume of water to be treated = 3MLD
 (ii) Detention period = 4 hours
 (iii) Velocity of flow = 10 cm/min
5. (a) Compare lime-soda and zeolite process for removal of hardness in water. 7
 (b) With a neat sketch and explain briefly the electro - dialysis method of desalination. 7
6. Write notes on **any two** of the following : 2x7=14
 (a) Types of aerators
 (b) Comparison between slow and rapid sand filters
 (c) Break point chlorination
7. Write short notes on **any four** of the following :
 (a) Reverse osmosis
 (b) Water borne diseases 4x3½=14
 (c) Joints in C. I. pipes
 (d) Intermittent water supply system \
 (e) Activated carbon treatment of water
 (f) Defluoridation