



c09-c-405

**3426**

**BOARD DIPLOMA EXAMINATION, (C-09)**  
**OCT/NOV—2014**  
**DCE—FOURTH SEMESTER EXAMINATION**  
**ENVIRONMENTAL ENGINEERING—I**

Time : 3 hours ]

[ Total Marks : 80

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**PART—A**

3×10=30

**Instructions** : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Define the terms 'ecology' and 'ecosystem'.
2. Draw the flow diagram of a typical water supply scheme.
3. List any three methods of forecasting the population of a town and write the formula for any one method.
4. Write any three causes of pipe corrosion.
5. Draw the sketches of a spigot and socket joint and label the parts.
6. State the need of laboratory tests for testing water.
7. List the methods of removal of temporary hardness and permanent hardness.

- \* 8. Compare between continuous and intermittent systems of supply in any three aspects.
9. State the function and location of the following :  
 (a) Gooseneck  
 (b) Tee  
 (c) Elbow
10. List any six principles to be observed while laying a pipeline in the premises of a building.

**PART—B**

10×5=50

- Instructions :** (1) Answer *any five* questions.  
 (2) Each question carries **ten** marks.  
 (3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. (a) What is fire demand? State the need for protected water supply. 2+2
- (b) From the census data of a town given below, estimate the population of the town in the year 2021 : method. 5+1=6

Year	1941	1951	1961	1971	1981	1991	2001
Population	51,600	64,750	72,800	81,150	93,550	1,15,700	1,27,450

Find the total water quantity required per day in the year 2021, if the per capita consumption is 180 lpcd. Use arithmetical increase

12. (a) Define the following : 3  
 (i) Groundwater table  
 (ii) Critical drawdown  
 (ii) Cone of depression
- (b) Briefly explain a driven well. 3
- (c) Compare between surface and subsurface sources in any four aspects. 4

- \* **13.** (a) Draw the neat sketch of a pressure filter and label the parts. 4
- (b) Differentiate between slow sand filter and rapid sand gravity filter in any six aspects. 6
- 14.** (a) Define aeration and list any four types of aerator. 3
- (b) Explain cascade aerators. 3
- (c) State the need for coagulation and list any four coagulants. 2+2=4
- 15.** (a) State any six requirements of a good disinfectant. 3
- (b) Explain the chlorination method of disinfection of water. 5
- (c) List any four factors affecting disinfection. 2
- 16.** (a) Compare gridiron and ring systems in any four aspects. 4
- (b) With the help of a sketch, explain the dead-end system. 3+3=6
- 17.** (a) With the help of a sketch, explain the construction and working of (i) reflux valve, and (ii) postfire hydrant. 4+4=8
- (b) State the function and location of (i) air valve, and (ii) drain valve. 2
- \* **18.** (a) Briefly explain four methods used to detect leakage in a distribution system. 6
- (b) State any eight measures to prevent leakage. 4

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