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**BOARD DIPLOMA EXAMINATION, (C-09)**  
**OCT/NOV—2013**  
**DCE—FOURTH SEMESTER EXAMINATION**  
**ENVIRONMENTAL ENGINEERING—I**

Time : 3 hours ]

[ Total Marks : 80

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**PART—A**

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **three** marks.  
(3) Answer should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Briefly explain about 'greenhouse effect'.
2. List any six factors which affect the per capita demand.
3. State the requirements of water for domestic purpose.
4. Briefly explain the recuperation test to find the yield of a well.
5. Define the terms (i) drawdown and (ii) circle of influence.
6. List the methods of removal of temporary hardness and permanent hardness.
7. What is meant by most probable number?

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8. State the functions and locations of (a) blowoff valve, (b) reflux valve and (c) fire hydrant.
9. List any six principles to be observed while laying pipeline in the premises of a building.
10. List any two merits and two demerits of continuous system.

**PART—B**

- 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? Draw the flow chart of a water supply scheme. 1+3=4

- (b) From the census data of a town given below, estimate the population of the town in the year 2021. Find the total water quantity required per day in the year 2021, if the per capita consumption is 180 lpcd.

[ Use arithmetical increase method ]. 5+1=6

Year	1941	1951	1961	1971	1981	1991	2001
Population	51600	64750	72800	81150	93550	115700	127450

12. (a) Describe briefly the possible sources of water for public water supply for a city. 6
- (b) What are the factors which govern the final choice of a source? 4

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- 13.** (a) State the need for laboratory tests for testing of water. 3  
(b) With the help of a neat sketch, explain the construction of rapid sand filter. 3+4=7
- 14.** (a) Draw the flow diagram of different treatment units in a treatment plant. 5  
(b) Explain the methods of disinfection of water. 5
- 15.** (a) What are the points to be considered while collecting samples from (i) a surface source, (ii) a tap and (iii) a pump fitted to a well? 3  
(b) Name the four physical tests and give their significance. 4  
(c) State the two causes and four effects of hardness. 1+2=3
- 16.** (a) Give the functions and locations of (i) ferrule, (ii) gooseneck and (iii) stopcock. 3  
(b) Draw a neat sketch showing all the details of a water connection taken from the water main to the building. 7
- 17.** (a) Compare a dead-end system and a grid-iron system in any four aspects. 4  
(b) With the help of a sketch, explain about radial system of layout. 3+3=6
- 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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