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BOARD DIPLOMA EXAMINATION, (C–09)
OCT/NOV—2016
DCE—FOURTH SEMESTER EXAMINATION

ENVIRONMENTAL ENGINEERING—I

Time : 3 hours]　　　　　　　　　　　　　　[*Total Marks* : 80

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. Briefly explain about 'greenhouse effect'.

2. Write any two empirical formulae to estimate fire demand.

3. State any four objectives of protected water supply scheme.

4. List different methods of conveyance of water.

5. Define spring and give the classification of springs.

6. Define sedimentation and give any four types of sedimentation tank.

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7. State any six requirements of good disinfectant.

8. How is leakage detected?

9. Define layout of distribution system and list various types of layout in distribution system.

10. State the function and location of the following :

(a) Stopcock

(b) Bend

(c) Reducer

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. Estimate the population for the years 2021 and 2031 from the following Census data of a town by arithmetical, geometrical and incremental increase methods :   10

Year	1951	1961	1971	1981	1991	2001	2011
Population	60,000	68,100	75,200	86,400	98,800	115,700	130,500

12. *(a)* List any three merits and three demerits of cast iron pipes.   3

(b) Draw the neat sketch and explain the construction of a socket and a spigot joint.   4+3=7

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13. *(a)* List any four objectives for tests on water. 4

(b) Enumerate any four chemical tests on water and explain the significance of each test. 2+4=6

14. *(a)* List any six methods of disinfection. 3

(b) With the help of a neat sketch, explain the working of a rapid sand filter. 4+3=7

15. *(a)* What are the causes for different types of hardness and list the methods of removal? 2+2=4

(b) Explain the lime-soda process for removal of hardness of water. 6

16. *(a)* List any ten principles to be observed while laying pipes in a building premises. 5

(b) Draw a neat sketch of water supply arrangements in a two-storied building and name various components. 5

17. *(a)* With the help of a sketch, explain briefly about the dual system of distribution. 2+2=4

(b) List any four merits of dual system. 2

(c) List any three merits and five demerits of intermittent system. 4

18. *(a)* With the help of a sketch, explain the working of *(i)* gate valve, *(ii)* check valve and *(iii)* air valve. 6

(b) State the function and location of the above appurtenances. 4

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