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C09–C–405

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BOARD DIPLOMA EXAMINATION, (C–09)

MARCH/APRIL—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. Define the terms ecology and ecosystem.

2. What is design period? Give the general design period for a water supply scheme.

3. Draw the flow diagram of a typical water supply scheme.

4. Briefly explain the recuperation test to find the yield of a well.

5. Define an intake and list various components of an intake.

6. Briefly explain about free chlorine compounds and combined available chlorine compounds.

7. Define hardness of water. What are the causes for different types of hardnesses?

8. State any six measures preventing leakages.

9. Sketch the layout of water supply arrangements for a single-storey building.

10. State the function and location of the following :

(a) Goose neck

(b) Tee

(c) Elbow

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)* List any four variations in the rate of demand. 2

(b) Predict the population for the years 2021 and 2031 from the following census data of a town by arithmetical and geometrical process : 4+4=8

Year	1951	1961	1971	1981	1991	2001	2011
Population	60000	68100	75200	86400	98800	115700	125900

12. *(a)* Briefly explain about a drilled well. 3

(b) State two merits and two demerits each of surface and subsurface sources. 4

(c) Define aquifer and give the classification. Name the wells tapping each aquifer. 3

13. *(a)* What is the need for coagulation. 2

(b) List any six requirements of good coagulant. 3

(c) Explain the process sedimentation by coagulation. 5

14. Explain the construction, working and cleaning process of rapid sand filter with a neat sketch. 3+3+2+2=10

15. *(a)* List any four points to be considered while collecting samples. 4

(b) State any three physical tests to be conducted on water and give the Indian Standards Limitations of the same for domestic water supply. 3

(c) Briefly explain the confirmed test stage of *E. coli* test. 3

16. *(a)* List any five merits and three demerits of dead end system. 4

(b) Explain with the help of neat sketch about grid iron system of layout in distribution. 3+3=6

17. *(a)* With the help of a sketch, explain the construction and working of *(i)* check valve and *(ii)* post fire hydrant. 4+4=8

(b) State the function and location of *(i)* air valve and *(ii)* drain valve. 2

18. *(a)* With the help of a sketch, explain briefly about the dual system of distribution and list any four merits of dual system. 2+2+2=6

(b) List any four merits and four demerits of intermittent system. 4

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