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C09–C–606 (B)

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BOARD DIPLOMA EXAMINATION, (C–09)

SEPTEMBER/OCTOBER - 2020

DCE—SIXTH SEMESTER EXAMINATION

GEOTECHNICAL ENGINEERING

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. List any three types of soils found in India.

2. List any three purposes of soil exploration.

3. Define void ratio and porosity.

4. Define compressibility of soil.

5. What are the methods for determination of coefficient of permeability in laboratory?

6. Define ultimate bearing capacity and net safe bearing capacity.

7. List the three modes of shear failure of soils.

8. State Terzaghi's principle of consolidation.

9. State any three causes of settlement of conditions.

10. List any three objectives of compaction of soil.

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. What is particle size distribution curve? How is it useful in soil engineering?

12. *(a)* Explain various boiling methods of soil exploration.

(b) What are the merits and demerits of direct shear test?

13. Describe pycnometer method for determination of specific gravity of soil.

14. A saturated sample of clay weighs 15 gm and its water content is 28 percent. If the particle specific gravity is 2·70, find *(a)* void ratio, *(b)* porosity, *(c)* dry unit weight and *(d)* bulk unit weight of the soil. Express unit weight in terms of kN / m^3.

15. Explain textural classification of soil with a sketch.

16. Explain in detail the method of determining the ultimate bearing capacity of soil by plate load left.

17. *(a)* Briefly explain the vertical pressure in soil beneath loaded area.

(b) Write about the field implications of consolidation in five sentences.

18. Explain the method of field measurement of compaction by corecutter method.

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