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BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV—2018

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. Differentiate between residual and transported soils.
2. Write a short note on geophysical methods.
3. Define (a) bulk density, (b) dry density.
4. Define consolidation.
5. Define ultimate bearing capacity of soils.
6. Write about the effect of water table on the bearing capacity of soils.

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7. Define an ^{*}isobar.
8. Briefly discuss consolidation in clays.
9. List the factors objecting compaction.
10. List any two methods of field measurement of compaction.

PART—B

10×5=50

Instructions : (1) Answer *any five* questions.

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

(3) The answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Explain in detail with a neat sketch, the procedure for carrying out hydrometer analysis of fine-grained soils.
12. (a) Explain with a neat sketch, the electrical resistivity method of subsurface exploration.

(b) List the factors that affect the permeability of a soil.
13. The void ratio of a soil sample is 0.72 and the specific gravity of soil particles is 2.72. Degree of saturation is 75%. Calculate the moisture content in the soil and the bulk unit weight. Take unit weight of water as 9.81 kN/m³.
14. Explain the laboratory procedure for determination of liquid limit of soils by Cassagrande's method.

15. Explain the ^{*}textural classification of soils with a neat sketch.
16. Explain the plate load test for determining the ultimate bearing capacity of soils.
17. (a) Explain the importance of settlements in foundations.
(b) Explain Terzaghi's spring model analogy of soils.
18. Describe the flexible pavement design based on traffic in terms of number of vehicles.

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