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BOARD DIPLOMA EXAMINATION, (C-16)

MARCH/APRIL—2021

DCE - FIFTH 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. Distinguish between cohesive and cohesion less soils.
2. State any three purposes for which soil exploration is done.
3. Briefly explain any one method of obtaining undisturbed soil sample.
4. State any three factors affecting permeability of soils.
5. Define bearing capacity and safe bearing capacity of soil.
6. Briefly explain the effect of water table on bearing capacity.
7. Mention the types of settlements of foundations.
8. Distinguish between compaction and consolidation of soils.
9. State any three differences between Proctor's test and Modified Proctor's compaction test.
10. Briefly explain the importance of CBR in the design of pavements.

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PART—B

10×5=50

- Instructions :** (1) Answer *any five* questions.
(2) Each question carries **ten** marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

- 11.** Explain the Sieve analysis of soils.
- 12.** (a) Describe open excavation method of soil exploration.
(b) Explain direct shear test experiment.
- 13.** Explain the test for finding specific gravity of soils by pycnometer method.
- 14.** A sample of wet soil has a volume of 0.0192 m³ and a mass of 32 kg. When the sample is dried out in an oven, its mass reduces to 28 kg, Determine (i) Bulk density, (ii) Water content, (iii) Dry density, (iv) Void ratio and (v) Porosity. Take the specific gravity of solids is 2.65.
- 15.** Explain Textural classification of soils.
- 16.** Explain field plate load test for determining ultimate bearing capacity of soil.
- 17.** (a) Briefly explain the importance of settlements in the design of foundation.
(b) Explain any one method of speeding up the consolidation process in the field.
- 18.** Explain Field measurement of compaction by core cutter method.

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