6623

C16-C–504

6623

BOARD DIPLOMA EXAMINATION, (C-16)

JANUARY/FEBRUARY—2022

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. What interpretations can be made from semi-logarithmic grain size curve.

2. State any three needs for soil exploration.

3. Define the terms *(a)* Water content and *(b)* Degree of saturation.

4. Define the terms *(a)* Permeability and *(b)* Hydraulic gradient of soils.

5. List any three factors affecting bearing capacity of soil.

6. Write the importance of safe bearing capacity values in the design of foundations.

7. Define the concept of settlement.

8. Define the terms *(a)* Compressibility and *(b)* Consolidation of soils.

9. Write the importance of California bearing ratio in design of pavements.

10. State any three factors affecting the compaction.

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. List the different types of transported soils and briefly explain any four of them.

12. Explain in detail the method of determining the soil moisture content by oven drying method.

13. Explain the laboratory procedure for determination of Plastic Limit.

14. *(a)* State the different systems of classification of soils.

(b) Explain briefly the textural classification of soils with a neat sketch.

15. *(a)* Explain with a neat sketch the electrical resistivity method of sub-surface exploration.

(b) Explain the procedure for determining the shear strength of soil by direct shear test.

16. Explain the field plate load test for determining the ultimate bearing capacity of soils.

17. *(a)* Briefly explain the vertical pressure in soils beneath the loaded areas.

(b) Explain the Terzaghi's spring model analogy of compression of soils.

18. Explain the method of field measurement of compaction by sand replacement method.