6623
BOARD DIPLOMA EXAMINATION
JUNE - 2019
DIPLOMA IN CIVIL ENGINEERING
GEO TECHNICAL ENGINEERING
FIFTH SEMESTER EXAMINATION

Time: 3 Hours   **Total Marks: 80**

PART - A   (3m x 10 = 30m)

Note 1:Answer all questions and each question carries 3 marks

2:Answers should be brief and straight to the point and shall not exceed 5 simple sentences

1. Define the following

    a) Plasticity   b) Cohesion

2. List any three boring methods used in soil exploration

3. Define a) Disturbed sample   b) Undisturbed sample

4. Define shear strength of soil

5. List the different modes of failure of soil

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

7. List any three remedial measures to avoid settlement in soils

8. Define: Initial consolidation, primary consolidation, secondary consolidation

9. Write any three factors affecting compaction

10. Write about California Bearing Ratio in three lines

PART - B   (10m x 5 = 50m)

Note 1:Answer any five questions and each carries 10 marks

2:The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer

11. Explain the method of dry sieve analysis of soils

12. Explain the pycnometer method to determine Specific Gravity of soil

13. Explain the laboratory procedure to determine liquid limit using Cassagrande's method

14. a) List the various systems of soil classification. Explain fine grained soils of I.S. classification.

b) A grain size distribution curve was drawn between particle size in mm on a logarithmic scale and the percent finer on Y axis. From the graph the 10% finer size, 30% finer size and the 60% finer size are 0.15mm, 0.45mm and 0.70mm respectively. Calculate the uniformity coefficient Cu and coefficient of curvature Cc

15A. Explain standard penetration Test. For unconfined compressive strength of cohesive soils

B. Describe the procedure to determine the shear strength of soil by direct shear test with neat sketch

16. A soil has a value of cohesion of 85kN/m² with an angle of internal friction $\Phi=25°$. The bearing capacity factors Nc, Nq, Nr for a Φ of 25° are 25, 19 and 15 respectively. Take unit weight of sample as 19kN/m3. Adopt F.S of 2.5. Assume square footing of size 1.5m and depth 1.5m.
Determine a) Ultimate bearing capacity b) Safe bearing capacity

17A. Describe the importance of bearing capacity and settlement in building foundations

B. Describe the Terzaghi's spring analogy of soils

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

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