6623
BOARD DIPLOMA EXAMINATION
MARCH/APRIL - 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   a) Loess   b) Bentonite

2. List any three methods of soil exploration

3. Define the terms

    a) Plasticity Index   b) Density index

4. Write the Darcy's law of coefficient of permeability

5. Define the terms

    a) Ultimate bearing capacity

    b) Safe bearing capacity

6. Write the importance of factor of safety

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

8. Define 'consolidation'

9. Write about compaction curve in three lines

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 wet sieve analysis of soils

12. a) Determine the dry density of soil sample if its bulk density is 18.5 kN/m³ and moisture content of 25%

    b) A sample of saturated clay weighs 19.48g and its moisture content is 29%. Take specific gravity as 2.70. Find void ratio and porosity

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. Write in brief about seismic refraction of sub surface soil exploration

  B. Explain compressibility of confined layers of soils

16. Explain the procedure for determining the ultimate bearing capacity of soils by plate load test with neat sketch?

17A. Explain the causes of foundation settlement

  B. Write about the field implications of consolidation of soils in about five lines

18. Explain the method of determination of CBR value

- xxx -