



C09-C-606B

**3726**

**BOARD DIPLOMA EXAMINATION, (C-09)**

**OCT/NOV—2015**

**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) Answer should be brief and straight to the point and shall not exceed *five* simple sentences.

1. State any six types of soil. 3
2. State various geophysical methods for soil exploration of soil. 3
3. Define (a) shrinkage limit and (b) shrinkage index. 3
4. State the advantages and disadvantages of direct shear test. 3
5. Define (a) ultimate bearing capacity and (b) safe bearing capacity. 3
6. State three factors on which bearing capacity of soil depends. 3
7. List various factors which cause settlement in soils. 3
8. State Terzaghi principle of consolidation. 3
9. State the factors that affect the degree of compaction. 3
10. Define (a) CBR value and (b) optimum moisture content. 3

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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 the criterion for valuation is the content but not the length of the answer.

- 11.** Explain hydrometer analysis of fine grained soils in detail with the help of a sketch. 10
- 12.** (a) State the classification of subsurface exploration. 5  
(b) Describe the method of conducting direct shear test in the laboratory with the help of a neat sketch. 5
- 13.** Define specific gravity. Write down the procedure for determination of specific gravity of soil by pycnometer method. 2+8
- 14.** (a) A soil sample has a porosity of 40%. The specific gravity of soil is 2.75. Calculate (i) void ratio and (ii) dry density. 5  
(b) The void ratios of a sample in its loosest state and densest state are 0.85 and 0.45. The natural voids ratio is 0.55. Calculate density index. 5
- 15.** Explain the IS classification of soils. 10
- 16.** Describe the method of determining the ultimate bearing capacity of soils by plate load test with a neat sketch. 10
- 17.** (a) Describe the importance of bearing capacity of foundation and settlements in foundations of a building. 5  
(b) Discuss the field implications of consolidation of soils in about five lines. 5
- 18.** Explain the method of determination of CBR value with the help of neat sketch. 10

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