



c09-c-606 B

**3726**

**BOARD DIPLOMA EXAMINATION, (C-09)  
MARCH/APRIL—2016  
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) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Define (a) plasticity and (b) cohesion. 1½+1½=3
2. State any three objectives of soil exploration. 3
3. Define (a) voids ratio and (b) porosity. 1½+1½=3
4. Define shear strength of soil. State any two factors that govern the shear strength of soil. 1+2=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 any three remedial measures to avoid settlement in soil. 3
8. State Terzaghi principle of consolidation. 3
9. Distinguish between compaction and consolidation. 3
10. State any three objectives of compaction. 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.** (a) State various types of soils. 4  
(b) Explain the method of dry sieve analysis of soil. 6
- 12.** (a) State the classification of subsurface exploration. 5  
(b) State the advantages and disadvantages of direct shear test. 5
- 13.** Define liquid limit. Write down the procedure for determination of liquid limit using Cassagrande's method with the help of neat sketch. 2+8=10
- 14.** (a) A soil sample has a porosity of 40%. The specific gravity of soil is 2.70. Calculate (a) voids ratio and (b) dry density. 5  
(b) The voids ratio of a sample in its loosest state and densest state are 0.81 and 0.45. The natural voids ratio is 0.53. Calculate density index. 5
- 15.** Explain the IS classification of soil in detail. 10
- 16.** Describe the method of determining the ultimate bearing capacity of soils by plate load test with a neat sketch. 10
- 17.** (a) Briefly explain the vertical pressure in soil beneath loaded areas. 5  
(b) Discuss the field implications of consolidation of soils in about five lines. 5
- 18.** Explain the method of field measurement of compaction by core cutter method. 10

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