



c09-c-606 B

3726

BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV—2013

DCE—SIXTH SEMESTER EXAMINATION

GEOTECHNICAL ENGINEERING

Time : 3 hours]

[Total Marks : 80

PART—A

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 are (a) clay and (b) bentonite?
2. What is the need of soil exploration?
3. A clay sample as a liquid limit of 43% and a plastic limit of 23%. What is the plasticity index?
4. Define the following :
 - (a) Permeability of soil
 - (b) Laterally confined soil
5. Write three characteristics of general shear failure of soil.
6. Define the following :
 - (a) Safe bearing capacity
 - (b) Factor of safety
7. State any three remedial measures against settlement of foundation.
8. Mention the principle of consolidation.

9. State any three factors that effect the degree of compaction.
10. Define the following :
- (a) Optimum moisture content
- (b) Maximum dry density

PART—B

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. Write the procedure of dry sieve analysis to determine grain size distribution of soil.
12. (a) Explain electrical resistivity method of soil exploration. 5
 (b) Describe the method of conducting direct shear test in the laboratory with a neat sketch. 5
13. Explain the laboratory procedure for determination of liquid limit of a soil sample by Cassagrande method.
14. A saturated sample of clay weighs 15 g and its water content is 28%. If the particle's specific gravity is 2.7, find (a) voids ratio, (b) porosity, (c) dry unit weight and (d) bulk unit weight of the soil.
15. Explain the textural classification of soils with a neat sketch.
16. Write the plate load test procedure to determine the ultimate bearing capacity of soil and the settlement of soil.
17. (a) What is the procedure for drawing an Isobar? 5
 (b) Write about the field implications of consolidation of soils in five sentences. 5
18. Explain the method of field measurement of compaction by sand replacement method.
