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BOARD DIPLOMA EXAMINATION, (C-16S)

NOVEMBER - 2019

DCE - V SEMESTER EXAMINATION

GEO-TECHNICAL 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.**

- 1 Differentiate between residual soils and transported soil.
- 2 State the need for soil exploration.
- 3 Define : (a) Voids ratio (b) Plasticity index (c) Degree of Saturation.
- 4 What assumptions are assumed to determine the shear strength of soil ?
- 5 State the importance of bearing capacity in design of foundations.
- 6 Distinguish between General shear failure and Local shear failure.
- 7 State the factors affecting the settlement of soils.
- 8 Differentiate between compaction of consolidation.
- 9 State the objectives of compaction.
- 10 What are the methods used for improvement of cohesionless soils related to Ground Improvement Techniques.

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[Contd...

PART - B

10×5=50

- Instructions :**
- (1) Answer any FIVE questions.
 - (2) Each question carries TEN marks.
 - (3) Answer should be comprehensive and criterion for valuation is the content but not the length of the answer.

- 11 Explain in detail with a neat sketch the hydrometer analysis of fine grained soils. 8+2
- 12 (a) List different types of borings used for soil exploration and explain any one method. 5
(b) Explain compressibility of confined layers. 5
- 13 Explain liquid limit test of soils by Cassagrande's method.
- 14 Explain IS classifications of soils.
- 15 A strip footing 1 m wide is laid at a depth of 2 m in soil having the following characteristics. 8+2
 $r = 18 \text{ KN/m}^3$ $C = 20 \text{ KN/M}^2$ $\phi = 28^\circ$
 $N_c = 32, N_r = 16, N_q = 18$
Calculate :
(a) Ultimate bearing capacity.
(b) Safe bearing capacity using a factor of safety as 3.
- 16 (a) Explain Terzaghi's model analogy of compression of springs showing the process of Consolidation. 6
(b) Explain vertical pressure distribution in soils beneath the loaded area. 4 <http://www.sbtetonline.com>
- 17 Explain field measurement of compaction by core cutter method.
- 18 Define grouting. Explaining the method of grouting for ground improvement.