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BICE-026

**B. TECH. CIVIL ENGINEERING
(BTCLEVI)**

Term-End Examination

June, 2019

BICE-026 : GEO-TECHNICAL ENGINEERING—I

Time : 3 Hours

Maximum Marks : 70

Note : Attempt any seven questions. All questions carry equal marks. Assume missing data, if any. Use of scientific calculator is permitted.

1. Discuss classification of samples and samplers. 10

2. A soil is saturated at 52% moisture content and has a unit weight of 16.5 kN/m^3 . Calculate its void ratio's specific gravity, dry unit weight and submerged unit weight. 10

3. What is Darcy's Law ? Under what conditions is this law valid ? Discuss. 10

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4. Enlist the different methods of field determination of unit weight. Explain any *two* methods of it. 10
5. Discuss briefly the factors affecting the shear strength. 10
6. In constant head permeability test, a soil sample 15 cm in diameter and 20 cm in length is tested. The drop from head water to tail water is 28 cm, and water weighing 3.415 kN passes through the soil sample in 4 hr. and 15 min. Find the permeability coefficient. 10
7. Discuss briefly the Direct Shear Test to find the shear strength. 10
8. What are the different types of compaction tests in the laboratory ? Explain in detail any *one* of it. 10
9. Write short notes on any *two* of the following :
2×5=10
 - (a) Quick sand condition
 - (b) Limitations of Direct Shear test
 - (c) Effect of amount of compaction