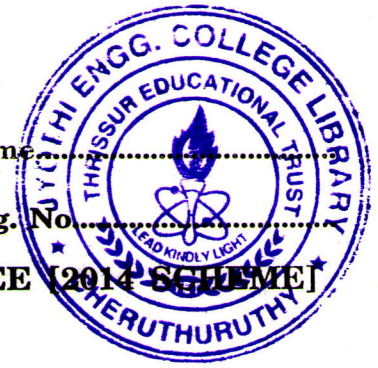


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Name

Reg. No.



**SEVENTH SEMESTER B.TECH. (ENGINEERING) DEGREE [2014 SCHEME]
EXAMINATION, NOVEMBER 2017**

Civil Engineering

CE 14 705 B—SOIL EXPLORATION, TESTING AND EVALUATION

Time : Three Hours

Maximum : 100 Marks

Part A

Answer any eight questions only.

1. Discuss the various objectives of soil exploration.
2. Write short note on Geophysical exploration using electrical resistivity method.
3. The Atterberg limits of a clay soil are : Liquid limit = 75%, plastic limit = 45 % and shrinkage limit = 25 %. If a sample of this soil has a volume of 30 cm³ at a liquid limit and a volume 16.6 cm³ at the shrinkage limit, determine the specific gravity of solids, shrinkage ratio and volumetric shrinkage.
4. Distinguish between compaction and consolidation.
5. When will you prefer variable head permeability method ?
6. State the advantages of standard penetration test.
7. What are the assumptions made in field permeability test ?
8. What is necessity of doing the vane shear test ?
9. List the various methods that can be adopted for improving the quality of rock.
10. Differentiate between laboratory and field test of rocks.

(8 × 5 = 40 marks)

Part B

Answer all the questions.

11. What are the methods of soil boring ? Explain in detail with suitable sketches.

Or

12. Describe in detail about the procedure to be followed for the preparation of report on soil exploration.

(15 marks)

Turn over

13. Derive the Terzaghi's equation for the one dimensional consolidation process in soils.

Or

14. Discuss the pore pressure parameters in strength of soils. What are the uses and applications of it?

(15 marks)

15. Explain the procedure of plate load test with a neat sketch and state the limitations.

Or

16. Write a short note on the following :—

(a) Dynamic cone penetration test.

(8 marks)

(b) Pressure meter test.

(7 marks)

17. Describe the different techniques used for the testing of deformability of rocks.

Or

18. Explain in detail about the procedure of estimation of elastic modulus of rock.

(15 marks)

[4 × 15 = 60 marks]