39

Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 90328

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2022.

Fourth/Fifth Semester

Civil Engineering

CE 8491 – SOIL MECHANICS

(Regulations 2017)

(Common to: Environmental Engineering)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is Void Ratio?
2. Define: Bulk Density and Dry Density.
3. Define Permeability.
4. Explain the formation of meniscus.
5. Define pressure bulb.
6. List the components of settlement in soil.
7. What is the effect of pore pressure on Shear Strength of soil?
8. What is strength envelope?
9. Define slope failure.
10. Define Stability number.

PART B — (5 × 13 = 65 marks)

11. (a) What are the factors affecting soil compaction?

Or

(b) Explain the procedure of determining shrinkage limit in the laboratory.

12. (a) Discuss in detail on factors affecting permeability.

Or

(b) Illustrate the properties, uses and application of flow net.

13. (a) Enumerate the features of Newmark's influence chart.

Or

(b) Explain the method to Terzaghi's one dimensional consolidation theory.

14. (a) Discuss about the Mohr-coulomb failure theory.

Or

(b) Elucidate the tri-axial compression test.

15. (a) Explain the Swedish circle method of analysis of slop stability with neat diagrams.

Or

(b) Explain briefly the procedure of Friction Circle Method of Analysis of slope stability with neat sketches.

PART C — (1 × 15 = 15 marks)

16. (a) A cylindrical specimen of saturated clay, 40mm in diameter and 90mm in over all length is tested in an unconfined compression tester. The specimen has coned ends and its length between the apices of cones is 80mm. Find the unconfined compressive strength of clay, if the specimen fails under an axial load of 46.5 N. The change in the length of specimen at failure is 10mm.

Or

(b) Discuss about different methods of slope protection measures with neat sketches.

———————