FirstRanker.com
Firstranker's choice
www.FirstRanker.com www.FirstRanker.com

Code No: **R32011** **R10** **Set No. 1**

III B.Tech II Semester Supplementary Examinations, April - 2018

GEOTECHNICAL ENGINEERING - I

(Civil Engineering**)**

Time: 3 hours **Max. Marks: 75**

Answer any FIVE Questions

All Questions carry equal marks

*****

1 a) Describe with neat sketches the structure of kaolinite, illite and montmorillonite. [8]

b) Describe the origin and formation of soil. [7]

2 a) Define liquid limit, plastic limit and shrinkage limit. [7]

b) A saturated sample of soil has a water content of 25%. Assuming G=2.7, calculate dry unit weight, saturated density and submerged unit weight. [8]

3 a) Explain laboratory determination of coefficient of permeability by constant head method. [8]

b) A horizontal stratified soil deposit consists of three layers each uniform in itself. The permeabilities of these layers are 8 x 10^{-4}cm/s, 52 x 10^{-4}cm/s and 6 x 10^{-4}cm/s and their thicknesses are 7, 3, 10m respectively. Find the effective average permeability of the deposit in the horizontal and vertical directions. [7]

4 a) What is seepage pressure? Explain piping phenomenon. [10]

b) Explain quick sand condition. [5]

5 a) State the assumptions made in Boussinesq's expression for the vertical stress at any point below the ground level due to a vertical point load on the surface. [8]

b) A 25 kN point load acts on the surface of horizontal ground. Find the intensity of vertical pressure at 6m directly below the load. Use Boussinesq's equation. [7]

6 a) Describe the effect of compaction on properties of soil. [7]

b) What is meant by optimum moisture content? How is it determined in the laboratory? [8]

7 a) Discuss Terzaghi's theory of consolidation stating various assumptions. [8]

b) Explain square root time fitting method to determine coefficient of consolidation. [7]

8 a) Explain Mohr Coulomb failure theory. [8]

b) What are the advantages and disadvantages of direct shear test? [7]

*****

www.FirstRanker.com