



KERALA AGRICULTURAL UNIVERSITY

B.Tech.(Agri. Engg) 2016 Admission

IV Semester Final Examination- July 2018

Lwre.2205

Soil Mechanics (2+1)

Marks: 50

Time: 2 hours

1 Fill in the blanks. (10x1=10)

- 1 Density index is only determined forsoil.
- 2 In calcium carbide method of water content determinationis produced
- 3 Darcy's law is valid for saturated soils and.....
- 4 Opposite process of consolidation is called
- 5 The theoretical maximum compaction for any given water content corresponds to air void conditions.

Define

- 6 Voids ratio
- 7 Consolidation
- 8 Maximum Hygroscopic Capacity
- 9 Compaction
- 10 Soil Mechanics (Terzaghi)

II Write short notes on ANY FIVE (5x2=10)

- 1 Derive relationship between e , S_r and n_a
- 2 Define Soil water and types of soil water
- 3 Derive Darcy's law
- 4 The factors affecting compaction
- 5 What is soil ? Enlist the field of application of soil mechanics.
- 6 A soil sample has porosity of 40 per cent. The specific gravity of solids 2.70. Calculate (i) voids ratio, (ii) dry density
- 7 What are the important points for Mohr's strength theory?

P.T.O

III Answer any FIVE of the following.

(5x4=20)

- 1 Derive the relationship between γ_d , γ and w
- 2 A coarse grained soil has a voids ratio of 0.78 and specific gravity of 2.67. Calculate the critical gradient at which quick sand condition will occur.
- 3 Give limitations of sedimentation analysis.
- 4 Limits of consistency of soil
- 5 Assumptions of Rankine's theory of active earth pressure.
- 6 Textural classification of soils.
- 7 Components of shearing resistance of soils.

IV Answer any ONE of the following.

(1x10=10)

- 1 The process of consolidation with spring analogy.
- 2 Explain the terms discharge velocity and seepage velocity of water through soil and derive the relationship between them.
