Code No: R1622354 **R16** SET - 1

II B. Tech II Semester Supplementary Examinations, November- 2018
SOIL MECHANICS
(Agricultural Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART –A

1. a) Sketch the phase diagram for a soil and indicate the terms (3M)
   b) Write a short note on Equivalent Point Load method (2M)
   c) Write the merits of Triaxial Test (2M)
   d) Write a short note on Harvard miniature compaction test (3M)
   e) Write the limitations of consolidation theory (2M)
   f) Write about the assumptions of columb's wedge theory of earth pressure (2M)

PART –B

2. a) Write about formation of soils. (4M)
   b) The atterberg limits of a clay soil are: Liquid Limit is 76%, Plastic Limit is 44% and shrinkage limit is 26%. If a sample of the soil has a volume of 30cm^3 at the liquid limit and a volume 16.6cm^3 at the shrinkage limit. Determine the specific gravity of solids, shrinkage ratio and volumetric shrinkage (10M)

3. a) Write the difference between Bousinsq's and Westergaurds theories (6M)
   b) A long strip footing of width 2m carries a load of 400KN/m. Calculate the maximum stress at a depth of 5m below the centre of line of footing. Compare the results with 2:1 distribution method. (8M)

4. a) What is direct shear test (2M)
   b) Derive the expression for stress systems with principal planes not with shear (12M)

5. a) Discuss about the effect of compaction on properties of soils (7M)
   b) The following are the results of the compaction test with standard proctor of weight 2kg calculate the OMC and MDD (7M)

Weight of soil with mould	2925	3025	3250	3085	2890
Water Content	10	12.5	13.8	15	17.5
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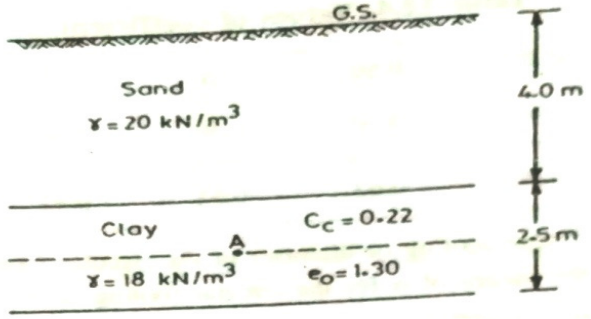
6. a) Calculate the settlement of clay layer shown in figure due to an increase of pressure of 30KN/m^2 mid height of the layer. Take γ_w 10KN/m^2 (10M)



b) Write about the stages of consolidation (4M)

7. a) What are the different types of Lateral earth pressures (6M)

b) Determine the active earth pressure on the retaining wall as shown in the figure and also draw the pressure distribution diagram and also calculate the magnitude and direction of the total pressure. (8M)