EKS-343   UITians

B.E. VII Semester (CGPA) Civil Engg. Examination 2017

GEOTECHNICAL ENGINEERING - I

Paper : CE-703

Time Allowed : Three Hours

Maximum Marks : 60

Note : i)   All questions should be attempted.

ii)   All questions carry equal marks.

iii)   There is internal choice in each question.

iv)   Assume suitable data if necessary.

Q.1.   a)   What is Plasticity index? How it is determined experimentally?

b)   Draw grain size distribution curve and explain how valves of uniformity coefficient and coefficient of curvature is determine from these graphs.

OR

a)   With the help of three phase diagram obtain relationship between void ratio, saturation, water content and sp. gravity.

b)   A sample of soil weights 98 gms the total volume is 60CC and after drying its weight is found 76 gms. Compute void ratio water content and dry density (G = 2.65)

Q.2. a) Explain classification based on consolidation pressure. How will you determine pre-consolidation pressure?

b) What are flownets? Discuss uses of flownets.

OR

a) Describe consolidation test with neat sketch.

b) Undisturbed samples were collected from a 3m. thick clay stratum which lies between two sand strata. A laboratory consolidation test was conducted on 2.5 cm thick sample of the clay. During the test water was allowed to drain out only through top of the sample. The time required for 50% consolidation was found to be 35 minutes. Determine the time required for 60% and 90% consolidation in the field.

Q.3. a) What is unconfined compression text? What is its advantages over box shear test?

b) Explain term liquefaction and critical void ratio.

OR

a) What is contract pressure distribution? How it changes with type of footing? Explain with neat sketches.

b) Explain Newmark's chart. How it helps in determining stress distribution.

Q.4. a) What is Taylor's stability number? How is it useful for slope stability analysis?

b) What is significance of cohesion and angle of interfriction analyzing slope stability? How these values are selected for various conditions.

OR

   a)   Give steps in friction circle method for slope analysis.

   b)   Explain swedish circle method with its assumptions and how factor of safety is calculated with its help.

Q.5.   a)   Explain Culmann's method for determining earth pressure.

   b)   What is arching in soils?

<div align="center">OR</div>

   a)   Differentiate between Rankine and Coulomb earth pressure theories.

   b)   Write note on reinforced earth.

<div align="center">❖❖❖❖❖❖❖</div>