Roll No. | | | | | | | | | | | | Total No. of Pages : 01

Total No. of Questions : 08

M.Tech. (Geo Technical Engineering)/
(Soil Mechanics & Foundation Engineering) (2016 & Onwards)
(Sem.–1)

ANALYSIS OF SETTLEMENTS OF SOILS & FOUNDATIONS

Subject Code : CESE-5
M.Code : 37213

Time : 3 Hrs. Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

1. a) Draw typical stress strain curves for normally consolidated & over consolidated clay. (8)
   b) Derive a Differential equation for one dimensional consolidation of soils. (12)
2. a) How would you estimate the settlement of a pile group in cohesionless soil? (10)
   b) Differentiate between total and differential settlements. What are their limits? (10)
3. What are functions of sand drains? How they are installed in the field? Explain with neat sketches. (20)
4. In a pile group, list the geometrical properties that are to be considered in bringing out a proper spacing of piles to ensure that they carry equal loads. Does the choice of a pile hammer have any relevance to the type of pile? Give reasons. (20)
5. Discuss advantages and disadvantages of Plate Load Test. Show the diagrammatic sketch of plate load test. Explain the procedure to get settlement from this test. (20)
6. Suppose two sandy soils are compacted with the same compactive effort. Sand A is uniform and has rounded particles. Sand B is well graded with angular particles.
   a) Which sand will have larger void ratio and Why? (10)
   b) Which sand will have larger friction angle and why so? (10)
7. a) The effect of a unique relationship between effective stress and undrained strength for a soil is only valid under certain conditions. List the factors that can influence this relationship. (14)
   b) Differentiate between CU & CD test. (6)
8. Write short notes on :
   a) Under-reamed Pile Foundation (10)
   b) Contact Pressure Distribution. (10)

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student