Total No. of Questions : 6]

SEAT No. :

P3

[Total No. of Pages : 2

APR - 18/TE/Insem. - 3

T.E. (Civil)

FOUNDATION ENGINEERING

(2012 Pattern) (Semester - II)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Answer Q1 or Q2, Q3 or Q4 and Q5 or Q6.***
2) ***Answer to the two sections should be written in separate books.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of logarithmic tables, slide rule, mollier charts, electronics pocket calculator and steam tables is allowed.***
5) ***Assume suitable data, if necessary.***
6) ***Neat diagrams must be drawn wherever necessary.***

Q1) a) State and explain factors influencing depth, number and lateral extent of site investigation. **[5]**

b) The standard penetration test is conducted in fine saturated sand below ground water table. Find the corrected standard penetration number due to dilatancy, if recorded standard penetration number is 40. **[5]**

OR

Q2) a) State & explain in brief different Soil Samplers. **[5]**

b) Explain the purpose / necessity of subsoil exploration. **[5]**

Q3) a) Explain the concept of floating foundation applied to a raft. **[5]**

b) Distinguish between local shear and general shear failure. **[5]**

OR

P.T.O.

Q4) a) The results of two plate load tests on a given location are as follows.

i) diameter = 750 mm, settlement = 15 mm, ultimate load = 150 kN.

ii) diameter = 300 mm, settlement = 15 mm, ultimate load = 50kN.

Determine the ultimate load on a circular footing of 1.2 m diameter causing 15 mm settlement. **[5]**

b) List out the factors considered while deciding the depth of foundation. **[5]**

Q5) a) Define differential settlement. What is angular distortion? Explain causes and techniques to reduce differential settlement. **[5]**

b) The oedometer test gives time of 90% consolidation as 18 minutes on a 20 mm thick specimen (double drainage-floating ring). Determine the time required for 50% consolidation for a clay bed 3 m thick with single face drainage. **[5]**

OR

Q6) a) Explain the terms Normal consolidation. Over consolidation and Under consolidation. **[6]**

b) In a consolidation test void ratio decreased from 0.7 to 0.65, when load was changed by 50 kN/m^2. Compute compression index and Coefficient of volume change. **[4]**