

Total No. of Questions :6]

SEAT No :

P167**APR -17/ TE/Insem.-3**

[Total No. of Pages :2

T.E. (Civil)**FOUNDATION ENGINEERING****(2012 Pattern) (301009) (Semester-II)***Time : 1 Hour]**[Max. Marks : 30**Instructions to the candidates:*

- 1) Answer Q.1 or Q.2, Q.3 or Q.4 and Q.5 or Q.6 .
- 2) Answer to the two sections should be written in separate books.
- 3) Figures to the right 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) Explain the procedure of 'Standard Penetration Test' with a neat sketch. Which are the corrections to be applied ? **[5]**
- b) Define
- i) Area ratio
 - ii) Inside clearance
 - iii) Outside clearance
 - iv) R.Q.D.
 - v) Recovery ratio **[5]**

OR

- Q2)** a) Determine the depth of overburden above the underlying stiff layer for the following data observed in seismic refraction test. Velocity in upper layer = 580m/s & velocity in lower layer = 4080 m/s. The break in time displacement plot was noted at 30 m/s. **[5]**
- b) Explain with a neat sketch (i) Auger boring (ii) Wash boring . **[5]**

P.T.O.

- Q3)** a) Write a note on 'Effect of water table on bearing capacity of soil'. [4]
 b) State Terzaghi's equation of bearing capacity for [6]
 i) Strip footing
 ii) Square footing
 iii) Circular footing .
 Explain the meaning of each term.

OR

- Q4)** a) The results of two plate load tests on a given location are as follows.
 i) diameter = 750mm, settlement= 15 mm, ultimate load =150kN.
 ii) diameter = 300 mm, settlement = 15 mm, ultimate load = 50kN.
 Determine the ultimate load on a circular footing of 1.2m diameter causing 15mm settlement. [6]
- b) Differentiate between Terzaghi's Bearing Capacity Theory & Meyerhof's Bearing Capacity Theory. [4]
- Q5)** a) Explain with a neat sketch the procedure for determination of pre consolidation pressure. [5]
 b) Define the following. [5]
 i) Over consolidation ratio
 ii) Normally consolidated soil
 iii) Coefficient of compressibility
 iv) Compression index
 v) Coefficient of volume compressibility
 vi) Degree of consolidation .

OR

- Q6)** a) Define the following. [4]
 i) Differential settlement
 ii) Angular distortion
 iii) Elastic settlement
 iv) Consolidation settlement
- b) A 6 m thick saturated clay has a compression index of 0.28. The void ratio at initial stress of 12kN/m² is 2.05. Calculate the settlement and change in void ratio if the stress is increased to 21.6 kN/m² . [6]

