

Total No. of Questions : 6]

SEAT No. :

P1257

[Total No. of Pages : 2

APR-18/T.E./Insem. - 103
T.E. Civil
FOUNDATION ENGINEERING
(2012 Pattern)

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, Mollies 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) What do you understand by soil investigation? What are different purposes for which site investigation done? [5]
- b) Explain electrical resistivity method. Also write application of this method. [5]

OR

- Q2)** a) Define the terms- Disturbed, Undisturbed soil sample, RQD. Core Recovery. [5]
- b) The inner diameter of sampling tube and that of cutting edge are 63mm and 61mm respectively. Their outer diameter is 65mm and 67mm respectively. Determine Area Ratio, inside clearance and outside clearance. [5]

- Q3)** a) A strip of 2 m width is founded at a depth of 4m below the ground surface. Determine the net ultimate bearing capacity using i) Terzaghi's ii) Skempton's equation, The soil is clay, $C = 10 \text{ kN/m}^2$, the unit weight of soil is 20 kN/m^3 , ($N_c = 5.7$, $N_q = 1$ and $N_y = 0.0$ for Terzaghi's). [5]
- b) Write a short note on plate load test. Also explain limitations of plate load test. [5]

OR

Q4 a) Describe Floating Foundation. [5]

b) Explain Terzaghi's Bearing capacity theory with equation. [5]

Q5 a) Define Normal consolidation, over consolidation and Preconsolidation Pressure. [4]

b) An undisturbed sample of clay 24mm thick, consolidated 50% in 20 minutes, when tested in the lab with drainage allowed at top and bottom. The clay layer, from which the sample was obtained, is 4 m thick in the field. How much time will it take to consolidate 50%, with single drainage? [6]

OR

Q6 a) Define differential settlement. What is angular distortion? Explain causes and techniques to reduce differential settlement. [7]

b) Define the following.- (i) Coefficient of compressibility (ii) Compression index (iii) Coefficient of volume compressibility. [3]

