

Total No. of Questions : 12]

SEAT No. :

**P2543**

**[5153]-508**

[Total No. of Pages : 3

**T.E.(Civil)**

**FOUNDATION ENGINEERING**

**(2012 Pattern) (Semester-II) (End Sem.) (301009)**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) *Answer Q.1 or Q.2, Q.3 or Q.4, Q5 or Q.6, Q.7 or Q.8, Q.9 or Q.10 and , Q.11 or Q.12.*
- 2) *Neat diagrams must be drawn whenever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume Suitable data, if necessary and mention it clearly.*
- 5) *Use of non-programmable calculator is allowed.*

**Q1)** Define boring. Explain in detail percussion drilling. **[7]**

OR

**Q2)** With neat sketch, discuss pressure meter test. **[7]**

**Q3)** The results of plate load test for settlement of 20 mm are as given below.**[6]**

Plate Width (m)	Load (kN)
0.3	50
0.6	190

Determine the width of square footing to carry a load of 1500 KN for permissible settlement of 20 mm.

OR

**Q4)** Enlist the limitations of plate load test. **[6]**

**Q5)** With neat sketch, explain the procedure for determination of pre consolidation pressure. **[7]**

OR

**P.T.O.**

- Q6)** a) Define: [3]
- i) normally consolidated soil
  - ii) over consolidated soil
  - iii) under consolidated soil
- b) A clay layer sandwiched between two pervious layers, reached 50% consolidation in two years. Calculate the time required for 50% consolidation of same clay layer, if it is between impervious rock at bottom and pervious layer at top. [4]

- Q7)** a) Explain cyclic pile load test in detail. [6]
- b) Write a note on: [6]
- i) methods for installation of piers
  - ii) Negative skin friction in piles
- c) Explain the procedure for calculation of the capacity of single pile by static method. [6]

OR

- Q8)** a) A group of piles consists of 15 piles arranged in three rows and five columns. Compute the efficiency of pile group by Feld's rule. [6]
- b) What is Caission disease? How it is controlled? [6]
- c) Explain different components of well foundation with neat sketch. [6]

- Q9)** a) Explain any five methods for anchorage of sheet pile. [5]
- b) Explain with sketches: [8]
- i) free earth support
  - ii) fixed earth support
  - iii) cantilever sheet pile
  - iv) anchored sheet pile
- c) Explain situation in which under reamed piles are required. [3]

OR

- Q10)a)** Explain ‘vibroflotation technique’ of soil improvement. [6]
- b) What are the engineering problems associated with black cotton soil?[4]
- c) Discuss any two tests to determine the swelling potential of black cotton soil. [6]

- Q11)a)** Define: [6]
- i) Epicenter
- ii) Focus
- iii) Focal depth
- iv) Epicentral distance. Draw a neat sketch.
- b) Enlist the types of geosynthetics and explain any two in detail. [6]
- c) Explain with neat sketch, the mechanism of reinforcement of soil. [4]

OR

- Q12)a)** What do you mean by ‘Liquefaction’? What are its effects on built environment? [6]
- b) Discuss the use of geosynthetics in road pavements. [6]
- c) Differentiate between P-waves and S-waves. [4]