

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

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- 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]

