Total No. of Questions : 12] **SEAT No. :**

P3916 **[Total No. of Pages : 3**

[4758] - 507
T.E. (Civil) (Semester - II)
FOUNDATION ENGINEERING
(2012 Pattern)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Solve Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10, Q11 or Q12.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Non programmable calculator is allowed.***
5) ***Assume suitable data wherever required and specify it clearly.***

SECTION - I

Q1) Explain with neat sketch "wash boring". **[6]**

Q2) Define : **[6]**

a) area ratio

b) inside clearance

c) outside clearance

Q3) Explain modes of shear failure. **[7]**

Q4) Explain various types of mat foundations. **[7]**

Q5) Explain the terms : **[7]**

a) allowable settlement,

b) differential settlement,

c) elastic settlement

d) consolidation settlement.

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Q6) Explain with a neat sketch square root of time fitting method for determination of coefficient of consolidation. **[7]**

SECTION - II

Q7) a) Differentiate between cast in situ piles and driven piles. **[6]**

b) Write note on "pile load test and interpretation of test results". **[6]**

c) Explain in detail negative skin friction on piles. **[4]**

Q8) a) Compute the efficiency of pile group consisting of 20 piles arranged in four rows, if the diameter of the pile is 400mm & spacing is 1m center to center by using : **[6]**

i) Converse Labbare's formula

ii) Seiler keeney's formula

iii) Feld's rule.

b) What is pier? Explain different methods of installation of pier. **[5]**

c) Explain different parts of well foundation with a neat sketch. **[5]**

Q9) a) Write detailed note on "earth and rockfill cofferdam". **[6]**

b) Explain with sketch "circular type cellular cofferdam". **[4]**

c) Explain with sketch construction under reamed piles. **[6]**

Q10) a) Explain 'stone column technique' of soil improvement. **[6]**

b) What are the engineering problems associated with black cotton soil as a foundation. **[5]**

c) Explain method to determine depth of embedment in cantilever sheet pile wall with simplified assumptions. **[5]**

Q11) a) What are the various types of geosynthetics used in road pavements. **[6]**

b) What are different functions of geosynthetics? Explain any four with sketches. **[7]**

c) Explain different liquefaction hazard mitigation methods. **[5]**

Q12) a) What is liquefaction? Explain any three effects of liquefaction. **[7]**

b) Enlist & explain different types of seismic waves. **[6]**

c) Differentiate between reinforcement in soil and reinforcement in concrete. **[5]**

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