OR

10. Write short notes on the followings:

a) General Shear Failure and Local Shear Failure.

b) Static Formulae for finding out the load carrying capacity of piles

c) Types of caissons

d) Factors affecting compaction.

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Roll No...................................

CE - 801
B.E. VIII Semester
Examination, June 2014
Geo. Technical Engineering - II

Time : Three Hours

Maximum Marks : 70

Note : *Attempt any five questions. One question should be attempted from each unit. All questions carry equal marks.*

UNIT - I

1. a) Define ; Ultimate Bearing Capacity, Net Ultimate Bearing Capacity, Safe Bearing Capacity, Net Safe Bearing Capacity.

   b) A Strip footing 1.2 meter wide is supported on a soil with its base at a depth of 1 meter below ground level. The soil properties are as follows: $\phi = 28°$, $C = 15$ kN/m^2, $V_{sat} = 18$ kN/m^3, V above water table = 10 kN/m^3, $Nc' = 25.1$, $Nq' = 12.7$ and $Nr' = 9.7$. Determine the Ultimate Bearing Capacity if

   i) Water Table at a great depth.

   ii) Water table is at the level of the base of the footing.

   Use Terzaghi's method.

   OR

2. a) A 30cm square test plate settles by 18mm in a plate load test conducted on a granular soil when the loading intensity was 200 kN/m². Estimate the likely settlement in a footing 1.5m square, resting on the same soil, at the same loading intensity.

b) i) Write down the limitations of Terzaghi's Analysis.

ii) Write down the limitations of plate loud test.

UNIT - II

3. a) Write down the classifications of pitess based on their functions.

b) A 450 mm wide, square in section concrete pile, 15 m long, is driven in a deep deposits of uniform clay. Laboratory unconfined compression tests on undisturbed samples indicate an average q_u value of 75 kN/m². Calculate the ultimate load carrying capacity of the pile.

OR

4. a) i) Write a brief note on 'group action' in piles.

ii) Write a brief note on 'negative skin friction' in piles.

b) A group of nine piles. 12m long and 250mm in diameter is to be arranged in a square form in a clay soil with an average unconfined compressive strength of 60 kN/m². Work out the centre to centre spacing of the piles for a group efficiency factor of 1. Neglect bearing at the tip of the piles.

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UNIT - III

5. a) Write a short note on 'Field compaction control'. Also explain the 'Procter Needle Method' for doing it.

b) What do you mean by soil stabilization? Write about chemical and bitumen stabilization.

OR

6. a) i) What do you understand by 'Zero air voids line' in the soil compaction?

ii) Write a brief note on 'Modified Procter Test'.

b) Write a note on 'Thermal' and 'Electrical' stabilization.

UNIT - IV

7. a) What are the various methods of site Exploration? Explain the wash boring method in detail.

b) Determine the area ratios for the following soil samplers and comment on the nature of samplers obtained in each of the samplers.

i) Core.culture   165mm OD   150mm ID

ii) Split.barrel   51mm OD   35mm ID

iii) Seamless tube   51mm OD   48mm ID

OR

8. a) Write a brief note on 'Open drive soil samplers'.

b) Write a brief note on 'Auger Boring' in case of soil exploration.

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UNIT - V

9. a) Using neat sketches, show the various types of cofferdams.

b) Give a very brief classification of Bulkheads.