

Roll No.....

CE-801**B.E. VIII Semester**

Examination, June 2016

Geo Technical Engineering - II*Time : Three Hours**Maximum Marks : 70*

- Note:* i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
 ii) All parts of each questions are to be attempted at one place.
 iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.
 iv) Except numericals, Derivation, Design and Drawing etc.

Unit - I

1. a) Define Net Ultimate Bearing Capacity and Gross Safe Bearing Capacity.
- b) Write the equations given by Terzaghi for square and circular footings to determine ultimate bearing capacity.
- c) State the assumptions made by Terzaghi in derivation of bearing capacity theory.
- d) What are the various characteristics of General shear failure; Local shear failure and punching shear failure?

OR

A rectangular footing $2\text{m} \times 3\text{m}$ rests on a $c-\phi$ soil, with its base at 1.5m below the ground surface. Calculate the safe bearing capacity, using a factor of safety 3 on

- i) Net ultimate bearing capacity and
- ii) Ultimate bearing capacity.

The soil has following parameters: $\gamma = 18 \text{ kN/m}^3$, $c = 10 \text{ kN/m}^2$, $\phi = 30^\circ$. Use Terzaghi's analysis.

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Unit - II

2. a) What do you understand by Negative Skin friction?
- b) Draw a neat sketch of well foundation.
- c) Explain Tilts and its removal.
- d) Explain Pile Load Test in detail.

OR

A square group of 9 piles was driven into soft clay extending to a large depth. The diameter and length of the piles were 30cm and 9m respectively. If the unconfined compressive strength of clay is 9t/m^2 and the pile spacing is 100cm centre to centre, what is the capacity of the group? Assume factor of safety of 2.5 and adhesion factor 0.75.

Unit - III

3. a) Differentiate between compaction and consolidation.
- b) Give name of various types of rollers with their suitability.
- c) Discuss various factors which affect the compaction.
- d) Explain various types of Geo-synthetics. Also discuss functions of Geo-synthetics.

OR

What is soil stabilization? Stating various methods of soil stabilization, explain any one in detail.

Unit - IV

4. a) Define area ratio and inside clearance.
- b) What do you understand by Bore Log?
- c) Explain CNS layer and its use in detail.
- d) Discuss various characters of expansive and collapsible soils.

OR

State and explain various types of soil samples and samplers.

Unit - V

5. a) Draw neat sketches of different sheet piles.
- b) What is Earth Cofferdam?
- c) Discuss safety against sliding cellular coffer dam on rocks.
- d) What are the criteria as per IS code for design of foundation for impact type of machine.

OR

Write various criteria as per IS code for foundation of Reciprocating machine.
