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Roll No ....

CE-801

B.E. VIII Semester

Examination, June 2017

Geo. Technical Engineering - II

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All question carry equal marks.
iii) Assume suitable data, if required.

1. a) Explain the different types of shallow foundations.   7

   b) A footing 2m square is laid at a depth of 1.3 m below the ground surface. Determine the net ultimate bearing capacity using IS code method. Take $r = 20$ kN/m^3, $\phi' = 30°$ and C' = 0.   7

2. a) What are the assumptions made in the derivation of terzaghi's bearing capacity theory? Write the equation for the ultimate bearing capacity.   7

   b) Differentiate between the general shear failure and the local shear failure. How the ultimate bearing capacity in local shear is determined?   7

3. a) A concrete pile, 30cm diameter, is driven into medium dense sand ($\phi = 35°$, r = 21 kN/m^3, k = 1.0, tanδ = 0.70) for a depth of 8m. Estimate the safe load, taking a factor of safety of 2.50.   7

   b) What is Negative Skin Friction? What is its effect on the pile?   7

4. a) How would you estimate the group capacity of piles in   7

   i) Sand

   ii) Clay

   b) Explain the causes and remedies for tilts and shifts of well foundations.   7

5. a) Explain the standard proctor test for compaction.   7

   b) Explain the different methods of compaction adopted in the field.   7

6. a) What is Mechanical Stabilization? What are the factors that affect the mechanical stability of a mixed soil?   7

   b) Explain the various methods of soil exploration.   7

7. a) Discuss the use of single-degree-freedom system in the analysis of machine foundations. What are its limitations?   7

   b) What is meant by Vibration Isolation? How is it done?   7

8. Write short notes on any four of the following: 14

   i) Plate load test

   ii) Disturbed and undisturbed sample

   iii) CNS layer

   iv) Cofferdams

   v) Anchored sheet piles

   vi) Electrical-stabilization

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