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Roll No

CE-801-GS

B.E. VIII Semester

Examination, December 2020

Grading System (GS)

Geo. Technical Engineering - II

Time : Three Hours

Maximum Marks : 70

- Note:** i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) What are different types of Shallow foundations? Explain with the help of sketches.
b) What are the various characteristics of General shear failures and Local shear failure?

2. a) Define; ultimate bearing capacity, Net ultimate bearing capacity, safe bearing capacity, net safe bearing capacity.
b) The results of two plate load tests for a settlement of 25.4 mm are given

Plate diameter	Load
0.305m	31kN
0.61m	65kN

A square column foundation is to be designed to carry a load of 800kN with an allowable settlement of 25.4mm. Determine the size using Housel's method.

3. Determine the friction load capacity of a driven circular pipe pile. Given : dia. of pile = 45cm, Length of pile = 22m, undrained shear strength = 2.0 T/m^2 , degree of internal friction = 0° and effective unit weight = 1.8 T/m^3 , $\lambda = 0.17$.

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4. a) Describe various types of pile foundations.
b) What is Negative Skin Friction? What is its effect on the pile?
5. a) What are the methods for improving the stability of slopes.
b) Compare ditch condition and projection condition.
6. a) Explain different classifications of piles with neat sketches.
b) A square group of 9 piles was driven into soft clay extending to a large depth. The diameter and length of the piles were 30 cm and 9 m respectively. If the unconfined compression strength of the clay is 90 kN/m^2 and the pile spacing is 90 cm Centre to Centre, what is the capacity of the group? Assume a factor of safety of 2.5 and adhesion factor of 0.75.
7. a) Explain with neat sketches different tilts and shifts of wells and their rectifying measures.
b) Explain with a neat sketch different forces acting on well foundations and construction and sinking of wells.
8. Write short notes on any four of the following-
 - a) Terzaghi's safe bearing capacity of soil
 - b) Geo-synthetics
 - c) CNS Layer
 - d) Cofferdams
 - e) Negative skin friction

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