Total No. of Questions :8] *[Total No. of Printed Pages :2*

 Roll No .....

MVCT/MVCP-302(B)

M.E./M.Tech., III Semester

Examination, June 2017

Advanced Foundation Engineering

(Elective - II)

Time : Three Hours

Maximum Marks: 70

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

1. a) Discuss characteristics of different types of bearing capacity failures.
   b) A building has to be supported on R.C. raft foundation of dimension 14m*21m. The soil is clay, which has an average unconfined compressive strength of 15kN/m^2. The pressure on the soil due to the weight of the building and the loads that if will carry will be 140kN/m^2 at the base of the raft. The building has provision for basement floors. At what depth should the bottom of the raft be placed to provide a factor of safety of 3 against shear failure? Yclay = 19kN/m^3. Use Skempton's approach for bearing capacity calculation.

2. a) Explain the Balla's theory of bearing capacity.
   b) Give detailed classification of piles.

3. a) Describe pile load test in detail.
   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 compressive strength of the clay is 9 t/m^2 and the pile

spacing is 100 cm centre to centre, what is the capacity of the group? Assume factor of safety of 2.5 and adhesion factor 0.75.

4. a) Explain the functions of Geosynthetics.
   b) Discuss strength characteristics of reinforced soil.

5. a) Explain by drawing a neat sketch reinforcement of soil for shallow foundation.
   b) Explain tilts and shifts

6. a) Draw a neat sketch showing various elements of bridge substructure.
   b) Give design steps of abutment.

7. a) Define marine structure. State various marine structures with there purpose.
   b) Discuss various general criteria for design of marine structures.

8. Write short notes on any four of the following :
   i) Bearing capacity factors
   ii) Negative skin friction
   iii) Laterally loaded piles
   iv) Breakwater
   v) Types of Geosynthetics
   vi) Well sinking
   vii) Uses of piles

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