M.E. First Semester (Civil Engineering (Geotechnical Engineering)) (Full Time) (C.G.S.- New)

13044 : Advanced Foundation Engineering : 1 SFGE 3

P. Pages : 2

Time : Three Hours

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AW - 3915

Max. Marks : 80

Notes : 1. Solve **any five** questions.
2. All question carry equal marks.
3. Use of pen Blue/Black ink/refill only for writing the answer book.
4. Assume suitable data wherever necessary.
5. Illustrate your answer necessary with the help of neat sketches.

1. Attempt the following.

a) Explain in details spacing of boring and depth of exploration along with IS recommendations. **8**

b) Explain planning and stages in sub-surface exploration program and different types of soil samplers. **8**

2. Attempt the followings.

a) Explain the dilatancy correction and overburden pressure correction for standard penetration test. In what way standard penetration test is useful in foundation design. **8**

b) Explain in details the plate load test as per IS procedure. In what way plate load test is useful in foundation design. **8**

3. Attempt the followings.

a) What is the use of coefficient of subgrade reaction? Explain the procedure for determining the coefficient of subgrade reaction with suitable sketch. **8**

b) Where do you provide combine footing? Discuss the procedure for design of following types of combine footings. **8**

1) Rectangular

2) Trapezoidal

4. Attempt **any two** of the following.

a) Explain different types of anchor's with suitable sketch. **8**

b) Describe in brief the various types of sheet pile wall. **8**

c) Determine the depth of embedment for the cantilever sheet pile shown in fig. A (assume suitable data whenever necessary). **8**

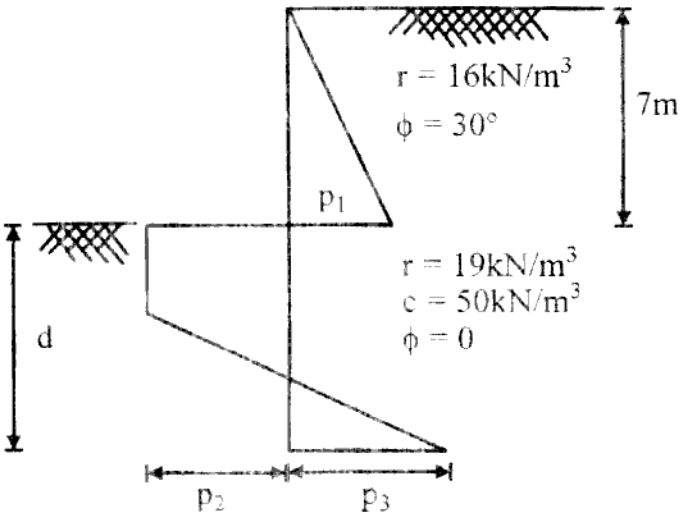

Fig. A

5. Attempt **any two** of the followings.

a) A steel pipe pile of outside diameter 64 cm and inside diameter 52 cm is driven into medium dense sand under subgrade conditions. The sand has a relative density of 60% and angle of internal friction of 38° calculate the ultimate lateral resistance of the pile by Brom's method. The submerged unit weight of soil is 8.8 kN/m^3 (assume suitable data whenever necessary). **8**

b) Define the term 'Negative skin friction'. Explain the procedure for calculating the negative skin friction on single pile and pile group. **8**

c) Explain Brom's solution of laterally loaded piles in cohesive and cohesionless soil. **8**

6. Attempt **any two** of the followings.

a) Explain in details IRC method for analysis of well foundation. **8**

b) Explain in details Terzaghi's analysis of well foundation. **8**

c) Explain the use of p – r curves for the solution of laterally loaded piles. **8**

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