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Roll No. .....

CE–801

B. E. (Eighth Semester) EXAMINATION, June, 2012

(Civil Engg. Branch)

GEOTECHNICAL ENGINEERING – II

(CE – 801)

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt all questions. All questions carry equal marks. Assume suitable data where necessary.

Unit – I

1. a) Distinguish clearly between the following : 4

   (i) Safe bearing capacity

   (ii) Allowable soil pressure

   (b) Discuss the factors that have influence on bearing capacity. 6

   (c) Calculate the depth at which the footing (2 m × 2 m) should be placed to transfer total load of 200 tons with a factor of safety 3. The soil is sandy having $\phi = 30°$ and unit wt 2 gms/cm^3. Ground water level is too deep. Given $N_q = 22$ and $N_y = 20$ for $\phi = 30°$. 10

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Or

2. (a) Write an explanatory note on the general types of foundation with suitable sketches. 10

   (b) Describe Terzagh's theory of bearing capacity of shallow strip foundations. 10

Unit – II

3. (a) Define "group efficiency of piles." Discuss the factors which affet its value. 10

   (b) A precast concrete pile was driven in soil using a 4 tonne hammer having a free fall of 90 cm. If the average penetration of pile in the lost five blows of the hammer was noted as 5 mm, compute the load carrying capacity of the pile using engg. news formula. 10

Or

4. (a) Sketch double underreamed pile with plinth beam giving approximate dimensions to various parts. 10

   (b) Write short notes on any *two* of the following : 10

   (i) Effect of settlement on foundation

   (ii) Caissons

   (iii) Negative skin friction

   (iv) Checking of suitability of type of foundation at site

Unit – III

5. (a) Differentiate between compaction and stabilization. Explain various methods adopted for any *one* of them in the field with detailed specifications, procedure, control etc. 10

   (b) Describe various field compaction equipments and their suitability. 10

Or

6. Describe the followings : 5 each

   (i) Stabilization with the water retentive chemicals

   (ii) Geosynthetics

   (iii) Total and differential settlements

   (iv) Vibrofloatation

Unit – IV

7. (a) Why are undisturbed samples required ? Describe any *one* procedure of obtaining undisturbed samples for a multistoreyed buildings project. 10

   (b) Discuss with neat sketches any *two* boring methods used in soil exploration. 10

Or

8. (a) Differentiate between the following : 5 each

   (i) Undisturbed and remolded soil sample

   (ii) Inside and outside clearance for soil samples

   (b) Discuss various laboratory tests to identify expansive soils. 10

Unit – V

9. (a) Explain the following : 4 each

   (i) Resonance

   (ii) Natural frequency of machine foundation

   (iii) Degree of freedom

   (b) What are coffer-dam ? Give various types with neat sketches. 8

Or

10. (a) Explain the term vibration isolation. What are its effects if not adopted ? 10

    (b) List the advantages of diaphragm wall over sheet pile wall for basement construction and vice versa. 10