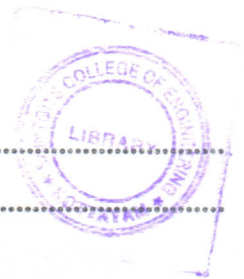


G 1201

(Pages : 3)

Reg. No.....

Name.....



B.TECH. DEGREE EXAMINATION, MAY 2015

Sixth Semester

Branch : Civil Engineering

CE 010 602—GEOTECHNICAL ENGINEERING—II (CE)

(New scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. Define bore log.
2. What are the uses of sheet pile walls ?
3. Explain sand drains.
4. Explain functions of foundation.
5. What are the uses of piles ?

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. How would you assess the degree of disturbance of a given soil sample.
7. Write a note on pressure bulb.
8. Write a note on vibroflotation.
9. Write down the factors to be considered in selecting the right type of foundation.
10. Write a note on negative skin friction.

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each full question carries 12 marks.

11. (a) Explain SPT N-value. Also explain the corrections to be applied. (6 marks)
- (b) Write down the objectives of site investigation. (6 marks)

Or

Turn over



12. (a) Derive the expression for stress at any depth due to live load. (7 marks)
(b) Write a note on Newmark's Chart. (5 marks)
13. (a) Describe Coulomb's wedge theory. Explain how maximum active pressure is determined. (6 marks)
(b) Compute the intensity of passive earth pressure at a depth of 8 m in a cohesionless sand with an angle of internal friction of 30° when water rises to the ground level. Saturated unit weight of sand is 21 kN/m^3 , $\gamma_w = 9.81 \text{ kN/m}^3$. (6 marks)

Or

14. (a) Explain common types of sheet piles. (6 marks)
(b) Write a note on sheeting and bracings in excavations. (6 marks)
15. (a) Write down the methods of reducing differential settlement. (4 marks)
(b) A strip footing of 2 m width is founded at a depth of 4 m below the ground surface. Determine the ultimate bearing capacity using Terzaghi's equation. The soil is clay ($\phi = 0$, $c = 10 \text{ kN/m}^2$). The unit weight of soil is 20 kN/m^3 . (8 marks)

Or

16. (a) A circular footing of diameter 3 m is founded at a depth of 1.5 m in medium stiff clay soil having an unconfined compressive strength of 175 kPa. Determine the net safe bearing capacity of footing with the water table at G.L by Skempton's bearing capacity analysis. Given that $\gamma = 21 \text{ kN/m}^3$, $N_c = 7$, $F_3 = 3$. (8 marks)
(b) Write a note on bearing capacity factors. (4 marks)
17. (a) Enumerate the advantages and limitations of various types of foundation. (5 marks)
(b) A square column $300 \times 300 \text{ mm}$ carries a dead load of 1020 kN and an imposed load of 410 kN. The foundation soil has a safe bearing capacity of 200 kPa. Design square footing. (7 marks)

Or

18. Design a trapezoidal combined footing for two columns $0.2 \times 0.2 \text{ m}$ carrying loads of 0.8 MN and 0.60 MN. If the spacing between column is 4m and allowable soil pressure is 250 kN/m^2 and length of footing is 5 m. (12 marks)

19. (a) Design a fiction pile group to carry a load of 3000 kN in a clay larger of 20 m depth underlain by rock. The unconfined compressive strength of the soil is 80 kN/m^2 . Take factor of safety value as 2.5.

(8 marks)

(b) Write a note on pile load test.

(4 marks)

Or

20. Explain construction details of well foundation.

(12 marks)

[5 × 12 = 60 marks]

