

CIVIL

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Question Paper Code : 80210

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Fifth Semester

Civil Engineering

CE 6502 — FOUNDATION ENGINEERING

(Regulation 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the information obtained in general exploration?
2. What are various methods of site exploration?
3. Define net pressure intensity.
4. List out the methods of computing elastic settlements.
5. Where mat foundation is used?
6. What are the assumptions made in combined footing?
7. What are methods to determine the load carrying capacity of a pile?
8. What is meant by group settlement ratio?
9. Write any two assumptions in Coulomb's wedge theory?
10. Distinguish Coulomb's wedge theory from Rankine's theory.

PART B — (5 × 16 = 80 marks)

11. (a) Describe the salient features of a good sub-soil investigation report. (16)

Or

- (b) Explain any two methods of site exploration in detail. (16)

12. (a) Explain Terzaghi's analysis of bearing capacity of soil in general shear failure with assumptions. (16)

Or

- (b) Explain different types of shear failures of soil with neat sketch. (16)

13. (a) A trapezoidal footing is to be produced to support two square columns of 30 cm and 50 cm sides respectively. Columns are 6 meters apart and the safe bearing capacity of the soil is 400 kN/m². The bigger column carries a load of 5000 kN and the smaller carries a load of 3000 kN. Design a suitable size of the footing so that it does not extend beyond the face of the columns. (16)

Or

- (b) Write the IS codal provisions for design of raft foundation. (16)

14. (a) A group of 16 piles of 50 cm diameter is arranged with a center to center spacing of 1.0 m. The piles are 9 m long and are embedded in soft clay with cohesion 30 kN/m. Bearing resistance may be neglected for the piles. Adhesion factor is 0.6. Determine the ultimate load capacity of the pile group. (16)

Or

- (b) Explain the method of determining the load carrying capacity of a pile. (16)

15. (a) Explain the Rebhann's graphical method for active earth pressure calculation. (16)

Or

- (b) Explain the Rankine's theory for various backfill condition to calculate active state earth pressure. (16)