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Question Paper Code : 31185

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Seventh Semester

Civil Engineering

CE 2033/CE 708/10111 CEE 28 — GROUND IMPROVEMENT TECHNIQUES

(Regulation 2008/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the role of ground improvement?
2. How the settlement of the foundation can be reduced?
3. What is the objective of increase of drainage path in the soil?
4. Why the dewatering in the soil is necessary?
5. What is meant by vibroflotation? What is its advantages?
6. Discuss the dynamic compaction of soil?
7. Describe the advantages of soil reinforcement for the weak soil.
8. List out the application of geo-synthetics.
9. Enumerate the steps required to stabilise the soil with lime.
10. What are the injection methods available for the stabilisation of soil?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss the principles of ground improvement for the cohesive soil and granular soil. (6)
(ii) Explain any two methods of ground treatment in cohesive soil. (10)

Or

- (b) (i) What are the methods available for the ground improvement in granular soil? (4)
(ii) Explain any three methods of ground improvement in granular soil. (12)

12. (a) Explain the seepage analysis for two dimensional flow with neat sketches. (16)

Or

- (b) (i) List out the methods available for the dewatering. (4)
(ii) Explain any three methods of dewatering. (12)

13. (a) Discuss any five methods of insitu treatment of soil. (16)

Or

- (b) (i) Distinguish between dynamic consolidation and electro-osmotic consolidation. (8)
(ii) Describe the sand drains and its installation. (8)

14. (a) Explain in detail about application of geotextiles and geo membrane for the construction of civil engineering works. (16)

Or

- (b) (i) Describe a suitable method to stabilise a highway fill foundation in hilly terrain with high rainfall. (10)
(ii) Explain the functions of geosynthetics. (6)

15. (a) What do you mean by grouting and discuss the four principal grouting methods? (16)

Or

- (b) Write short notes about
(i) Grouting equipments
(ii) Grouting monitoring
(iii) Stabilisation of soil with cement
(iv) Stabilisation of expansive soil. (4 × 4 = 16)