Reg. No. :

Question Paper Code : Q 2750

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Seventh Semester

Civil Engineering

CE 1014 — GROUND IMPROVEMENT TECHNIQUES

(Regulation 2004)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Mention the various methods of ground improvement techniques (any four).

2. List the important characters of black cotton soil.

3. What is "dewatering system"?

4. What are drains? What does it consist of?

5. What are the advantages of vacuum preloading method?

6. Distinguish between the densification of cohesive and non-cohesive soils.

7. What are the advantages of using geogrids for soil reinforcement in comparison to steel strips for reinforced earth walls?

8. Write down the properties which are required for pavement design using geotextiles?

9. What are the disadvantages of compaction grouting?

10. Name some of the chemicals used in the stabilisation of soils.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Suggest the measures to be taken to prevent the problems before and after construction in expansive soils. (10)

(ii) What are the ground improvement techniques available based on soil conditions? Explain. (6)

Or

(b) Explain in detail the factors which contribute for ground alteration. (16)

12. (a) (i) What are the ground water control and seepage control required during and after construction? (6)

(ii) Explain in detail the well point systems. (10)

Or

(b) Discuss the various steps involved in design of Dewatering Systems.

13. (a) Write short notes on :

(i) Dynamic compaction of cohesionless soil

(ii) Dynamic consolidation of cohesive soils. (8 + 8)

Or

(b) What is preloading of soil? Explain a few of the preloading methods.

14. (a) Discuss in detail the applications of Geosynthesis in India for various civil engineering works.

Or

(b) Discuss the following :

(i) Mechanical properties of Geosynthetics (10)

(ii) Hydraulic properties of Geosynthetics (6)

15. (a) Explain the technique of stabilisation of soil using cement and lime.

Or

(b) Explain any two Injecting Techniques in grouting process.

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