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Question Paper Code : 71528

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Seventh Semester

Civil Engineering

CE 6012 — GROUND IMPROVEMENT TECHNIQUES

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the necessity of ground improvement?
2. List out the ground improvement methods in cohesive soils.
3. Illustrate the problems occurred due to seepage of water.
4. What is the necessity of increase of drainage path in the soil?
5. What are the advantages of vibroflotation?
6. Differentiate between sand drains and stone columns.
7. What do you understand by reinforced soil?
8. List out the applications of geotextiles.
9. Name the injection methods used for stabilization of soils.
10. Discuss the basic function of grouting.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the factors to be considered in the selection of best technique for ground improvement.
(ii) Briefly discuss various methods of ground improvement for alluvial and laterite soils. (8 + 8 = 16)

Or

- (b) List out the methods available for the ground improvement techniques in granular soil. Explain any three methods in detail.

12. (a) List out the methods available for the dewatering. Explain any three methods of dewatering.

Or

- (b) (i) Briefly discuss the seepage analysis of two dimensional flow in soils.
(ii) What is flow net? Discuss the application of flow net in detail. (10 + 6 = 16)
13. (a) Write short notes on : (4 × 4 = 16)
- (i) Lime piles
 - (ii) Sand piles
 - (iii) Dynamic consolidation
 - (iv) Electro-osmotic consolidation.

Or

- (b) (i) Describe any three methods of in-situ treatment of soils.
(ii) Discuss the vibroflotation technique in details with a neat sketch. (10 + 6 = 16)
14. (a) What are the functions of geosynthetics? Explain in detail the application of geosynthetics in various civil engineering works.

Or

- (b) (i) Briefly discuss construction of reinforced earth wall.
(ii) Explain in detail the application of soil reinforcement in various civil engineering works. (6 + 10 = 16)
15. (a) Write short notes on :
- (i) Grouting equipments
 - (ii) Grouting monitoring
 - (iii) Characteristics of grouting
 - (iv) Cement grout and chemical grout. (4 × 4 = 16)

Or

- (b) Explain in detail different methods of stabilizing expansive soils.