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Question Paper Code: 31191

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Elective

Civil Engineering

01UCE910 – GROUND IMPROVEMENT TECHNIQUES

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 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 vibro flotation? what is its advantages?
6. Illustrate the dynamic compaction of soil.
7. Enlist the advantages of soil reinforcement for the weak soil.
8. List out the application of geo-synthetics.
9. Enumerate the steps required to stabilize the soil with lime.
10. What are the injection methods available for stabilization of soil?

PART - B (5 x 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) List 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 with sketches. (12)
13. (a) Discuss any three methods of in-situ treatment of soil. (16)

Or

- (b) (i) Distinguish between dynamic consolidation and electro-osmotic consolidation. (10)
 - (ii) Describe the sand drains and its installation. (6)
14. (a) Explain in detail about applications of geo-textiles and geo membrane for the construction of civil engineering works. (16)

Or

- (b) (i) Describe a suitable method to stabilize a highway fill foundation in hilly terrain with high rainfall. (10)
 - (ii) Discuss the functions of geo-textiles. (6)
15. (a) What is grouting? Discuss any four principal grouting methods. (16)

Or

- (b) Write short notes on
 - (i) Grouting equipments
 - (ii) Grouting monitoring
 - (iii) Stabilization of soil with cement
 - (iv) Stabilization of expansive soil (16)