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Question Paper Code: 31183

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

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. What are the methods used in ground improvement?
3. What is the objective of increase of drainage path in the soil?
4. What are filter wells?
5. What is meant by vibro flotation? what is its advantages?
6. What are stone columns?
7. Enlist the advantages of soil reinforcement for the weak soil.
8. What are the uses of geo-synthetics in paved roads?
9. Enumerate the steps required to stabilize the soil with lime.
10. What soils are treated by jet grouting?

PART - B (5 x 16 = 80 Marks)

11. (a) What is expansive soil? Explain the various techniques to improve the engineering properties of expansive soil. (16)

Or

- (b) (i) List the methods available for the ground improvement in granular soil. (6)
- (ii) Explain any three methods of ground improvement in granular soil. (10)
12. (a) Explain the seepage analysis for two dimensional flow with neat sketches. (16)
- Or
- (b) Describe dewatering by electro osmosis method by smart diagram. (16)
13. (a) Discuss any three methods of in-situ treatment of soil. (16)
- Or
- (b) Explain vibro-floation compaction process in step by step with neat and clear sketches. (16)
14. (a) Explain the various application of geo-synthetic material used for erosion control and slope protection. (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) Explain the mechanism through which a soil gets stabilized with cement. What are the factors that affect the performance of soil-cement. (16)
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