Printed Pages: 4 ECE-061

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 100855 Roll No. 1 2 0 3 2 0 0 0 9 4

B.TECH.

Theory Examination (Semester-VIII) 2015-16

GROUND IMPROVEMENT TECHNIQUES

Time : 3 Hours *Max. Marks : 100*

Section-A

1. **Attempt all parts. All parts carry equal marks. Write answer of each part in short.** **(2×10=20)**

a. What is compaction? When is it adopted?

b. How is stabilization of soil achieved by cement?

c. What are the applications of vibro - flotation?

d. How is dynamic compaction different from static compaction?

e. What is dewatering? What are the various methods of dewatering?

f. What is advantage of using vertical drains along with pre – loading?

g. What are the different types of grouts?

h. Name the different methods of grout injection.

i. Name a few raw materials that are used in the manufacture of geosynthetics.

j. What are the principle requirements of a reinforcing material?

Section-B

Q2. **Attempt any five questions from this section.** **(10×5=50)**

(a) Describe in detail how chemicals are used in stabilizing the soil with the help of an example.

(b) Compare and contrast the various methods of in – situ densification techniques.

(c) Comment on the use of vibratory techniques in improving the bearing capacity of cohesive soils in-situ.

(d) Explain in detail about the method of pre – loading. How do vertical drains improve the functioning of pre loading technique?

(e) Write a note on the importance of grout monitoring and the methods of grout control.

(f) Describe critically the use of thermal stabilization as a method for ground improvement.

(g) Explain in detail, the underpinning of foundations. Also write the various situations for the underpinning.

(h) How do geosynthetics function as a filter? How does it differ in its function for drainage? Explain in detail with sketches.

Section-C

Note: Attempt any two questions from this section. **(15×2=30)**

Q3. Discuss the practical situations which necessitate the ground modification. What are the quality control tests in shallow compaction? Explain the Proctor needle method.

Q4. Explain in detail the method of dynamic compaction of cohesionless and dynamic consolidation of cohesive soil.

Q5. Explain in detail the principle, equipment used, installation and operation and precaution adopted in electro- osmotic dewatering.