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NCE061

B.TECH.
THEORY EXAMINATION (SEM–VIII) 2016-17
GROUND IMPROVEMENT TECHNIQUES

Time : 3 Hours *Max. Marks : 100*

Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.

SECTION – A

1. Explain the following: **10 x 2 = 20**

(a) What is soil stabilization? What are its uses?
(b) List the field method of compaction.
(c) Numerate the application of vibro compaction.
(d) What do you understand from the term in - situ densification?
(e) Evaluate the factors affecting densification in cohesive soil.
(f) Enumerate the advantages and disadvantages of dewatering.
(g) Define grouting. List any two applications of grouting.
(h) When is preloading adopted as a ground improvement technique?
(i) Distinguish between suspension grouts and solution grout.
(j) List the function of geo-textiles as filter.

SECTION – B

2. Attempt any five parts of the following questions: **5 x 10 = 50**

(a) Explain the principle and application of soil-lime stabilization.
(b) Discuss about Dynamic compaction.
(c) Describe the vibro-flotation technique of densifying granular soil.
(d) Enumerate the advantage of using vertical drains along with preloading?
(e) Brief on thermal stabilization of soil from heating and its application
(i) What are the different types of Grouts available and what are its properties?
(ii) What is the role of grouting in ground improvement?
(f) Discuss the construction and failure mode of granular piles
(g) What is the role of geosynthetic in protecting soil from contamination? Describe in detail.

SECTION – C

Attempt any two of the following questions: **2 x 15 = 30**

3 (i) Describe soil-cement stabilization. What are the actions involved in soil-cement stabilization? Explain what are the factors affecting strength of soil-cement mixes?

(ii) Explain about deep compaction of in-situ foundation soil by Terra probe compaction.

4 (i) Describe in detail about soil nailing and when is it adopted?

(ii) With the help of neat sketches, explain in detail the application of geosynthetics as separation

5 Write the dewatering techniques used in cohesive soils with neat sketch in detail.