

Code No: **R41016**

R10

Set No. 1

IV B.Tech I Semester Supplementary Examinations, October/November - 2017

GROUND IMPROVEMENT TECHNIQUES

(Civil Engineering)

Time: 3 hours

Max. Marks: 75

**Answer any FIVE Questions
All Questions carry equal marks**

- 1 a) How dewatering methods improve the strength characteristics of a soil? Explain in detail. [8]
b) Explain the electro-osmosis method of dewatering soil. [7]
- 2 a) What are the properties of the grout mixes:
(i) Cement mortar. [8]
(ii) Suspensions such as ultra-fine cement.
b) Explain the following grouting methods:
(i) Compaction. [7]
(ii) Penetration.
- 3 a) Describe the method of densification by Blasting? Explain its effectiveness. [8]
b) Explain the method of vibro flotation applied for compaction of granular soils at depth. Give neat sketches wherever required. [7]
- 4 a) What are the advantages of stone columns construction? [8]
b) Explain with a neat sketch of sand wick drain to accelerate the drainage of impervious soils. [7]
- 5 a) What are the principles and guidelines for mechanical stabilization of soil? Explain. [7]
b) Discuss about the methods of stabilizing the soils using chemical compounds. [8]
- 6 a) Give the applications of reinforced earth in civil engineering and the principles governing reinforced earth. [8]
b) Explain the design principles of reinforced earth walls and the factors influencing their design. [7]
- 7 a) Explain the advantages and disadvantages of woven and non-woven geotextiles. [8]
b) Explain the various tests conducted on geotextiles to assess their properties. [7]
- 8 a) What do you understand about the expansive soil and discuss about the swell and shrink behavior of an expansive soil? [8]
b) Explain the problems due to the expansive soil in pavement construction. [7]