Code No: **R164101B** **R16** **Set No. 1**

IV B.Tech I Semester Regular/Supplementary Examinations, Jan/Feb – 2022

GROUND IMPROVEMENT TECHNIQUES

(Civil Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
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PART–A *(14 Marks)*

1. a) How do you classify cohesive soils at site? [2]
   b) What is electro osmosis? [2]
   c) Discuss about polymer stabilization. [2]
   d) What is soil nailing? Explain. [3]
   e) Elaborate the role of geogrid in soil stabilization. [3]
   f) Discuss about objectives of grouting. [2]

PART–B *(4x14 = 56 Marks)*

2. a) Explain how the stone columns are installed, with the help of a neat sketch? [7]
   b) Explain how sand drains are effective in improving the properties of expansive soils? [7]

3. a) What is the criteria for selection of fill materials around drains? [7]
   b) Explain the single and multi-stage well point systems with the help of neat sketch. [7]

4. a) Discuss the use of fly ash in soil stabilization. [7]
   b) Write a note on factors affecting cement stabilization. [7]

5. a) Discuss the functional difference between reinforced earth and reinforced cement concrete. [7]
   b) Explain the procedure for the fixation of horizontal spacing of reinforced strips in a reinforced earth retaining wall. [7]

6. What do you understand about the Geo-membranes? Explain the functions, properties and applications of geo-membranes. [14]

7. a) Discuss about any four physical characteristics of grouting liquid with reference to engineering applications. [7]
   b) How do you decide the spacing and depth of injection holes for a grout curtain in any major hydraulic structure? [7]