Code No: 157BV

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, February/March - 2022
GROUND IMPROVEMENT TECHNIQUES
(Civil Engineering)

Time: 3 Hours **Max. Marks: 75**

Answer any Five Questions
All Questions carry equal marks

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1.a) List the objectives of compacting soil and explain the purpose of compaction.
b) What are the strategies developed for optimizing the densification process of ground? [8+7]

2.a) Discuss the instances when do we recommend ground improvement?
b) Write the objectives and scope of ground improvement. [8+7]

3. Discuss the method of vibroflotation for compacting the granular soils under the head, vibration at depth. In what respects the compaction piles differ from this. [15]

4. What are the in situ conditions which seek ground improvement in clays? Discuss the following ground improvement methods with clear mechanisms:
a) Stone columns b) Lime columns. [15]

5.a) Sand drains, sand wicks and geo-drains are used under similar soil conditions for ground improvement. Compare their relative merits and demerits. Which one do you prefer?
b) What is preloading? Discuss its objective. [9+6]

6.a) Explain the method of improvement of soft soils by preloading along with vertical drains with neat sketches.
b) Explain in detail with neat sketch the electro-kinetic approach of dewatering. [8+7]

7.a) What is grouting? Explain in detail the method of compaction grouting.
b) Explain in detail various field of applications of grouting. [8+7]

8.a) Discuss the practical relevance of (i) Ground anchors and (ii) Rock bolting.
b) Discuss the effectiveness of reinforcement with strip and geogrid reinforced soil. [8+7]

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