

Sub Code: **CET-603**

ROLL NO.....

**SEMESTER EXAMINATION,
2022-23 YEAR**

Programme – Ist Yr. M.Tech – GEOTECHNICAL ENGINEERING

Ground Improvement Techniques.

Duration : 3:00 hrs

Max Marks: 100

Note:-Attempt all questions. All Question carry equal marks. In case of any ambiguity or missing data, the same may be assumed and state the assumption mad in the answer.

Q 1. Answer any four parts of the following.

- a) What is the necessity of ground improvement? Explain.
- b) List out the methods of ground improvement.
- c) How the dewatering is carried out for the construction of bored tunnels.
- d) Enumerate the problems occurred due to seepage of water.
- e) Differentiate between sand drains and stone column.
- f) Write a note on dynamic compaction.

Q 2. Answer any four parts of the following.

- a) What do you mean by reinforced soil? Explain.
- b) Discuss the reinforcement of soil beneath foundation.
- c) What are the various application of grouting.
- d) Discuss basic function of grouting.
- e) Describe a method suitable to stabilize a highway till foundation in hilly terrain with high rainfall.
- f) Describe dynamic consolidation in detail.

Q 3. Answer any two parts of the following.

- a) What are the factors to be considered in the selection of best technique for the ground improvement?
- b) discuss the various methods of ground improvement for alluvial and laterite soil.
- c) How the performane of black cotton soil can be improved? Discuss

Q 4. Answer any two parts of the following.

- a) Write the sequence to be followed in jet grouting with neat sketch.

- b) Compare the relative advantages and disadvantages of permeation grouting using cement grout and chemical grout.

- c) Discuss vibroflotation technique for clay soil.

Q 5. Answer any two parts of the following.

- a) Explain the construction sequence of reinforced earth wall with vertical forces.

- b) Write a note on lime pile and sand pile.

- c) Explain insitu densification of cohesionless soil.

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