

5E1749	Roll No. _____	Total No. of Pages : 2
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	B.Tech. V-Sem. (Main & Back) Examination, November/December - 2025 Civil Engg. 5CE5-15 Ground Improvement Techniques (Elective - II)	

Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates:

Attempt all Ten questions from Part A, Five questions out of Seven questions from Part B and Three questions out of Five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

*Use of following supporting material is permitted during examination.
(Mentioned in form No.205)*

PART - A

(Answer should be given up to 25 words only).

All questions are compulsory.

(10×2=20)

- ~~1.~~ What you understand by organic soil?
- ~~2.~~ Differentiate between expansive and collapsible soil.
3. What are the objectives of ground improvement techniques?
- ~~4.~~ What you understand by densification of soil?
- ~~5.~~ What you understand by displacement piles?
- ~~6.~~ Differentiate between compaction and compressibility.
7. Explain the point grouting.
- ~~8.~~ What you mean by soil reinforcement?
9. Which method is better for soil stabilization and why?
10. Enlist the list of chemicals which is used in chemical stabilization.

PART - B

(Analytical/Problem solving questions)

(5 × 4 = 20)

Attempt any Five questions.

1. Discuss critically the purpose and principles of ground improvements.
2. Explain the terms: mechanical weathering, residual soil, soil profile and sedimentary soil.
3. Give the soil properties comparison of compaction on dry-of-optimum with wet-of-optimum.
4. Describe the Vibroflotation compaction process with neat sketch.
5. Explain the typical sand drains method with neat sketches.
6. What are the intense monitoring efforts which is required at the times during the grouting process?
7. Write a detail notes on lime stabilization.

PART - C

(Descriptive/Analytical/Problem Solving/Design question)

Attempt any Three questions.

(3 × 10 = 30)

1. Discuss with keeping in view the aspects of geotechnical engineering the major regional soil deposits of India.
2. What is displacement piles? Describe the sand compaction piles method
3. Write notes on the following:
 - a) Deep compaction by vibratory probes method
 - b) Measurement of density in field
4. Discuss on typical layout of a grouting plant and equipment with neat sketches.
5. Write notes on (any two) from the following:
 - a) Bituminous stabilization
 - b) Design methods of reinforced earth wall
 - c) Grouting methods