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Pages: 2

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S7 (R,S) (FT/WP) (S5 PT) Examination November 2025 (2019 Scheme)



Course Code: CET423

Course Name: GROUND IMPROVEMENT TECHNIQUES

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

Marks

- | | | |
|----|---|-----|
| 1 | List any three alternative strategies to be chosen when a project encounters difficult ground conditions. | (3) |
| 2 | Name any two types of problematic soils and suggest suitable ground improvement technique to be adopted for them. | (3) |
| 3 | What are the factors affecting degree of compaction? | (3) |
| 4 | Explain the concept of ground modification by blasting. | (3) |
| 5 | Illustrate the concept of foundation drain. | (3) |
| 6 | Write a short note on sand drains. | (3) |
| 7 | Explain the filtration function of geotextile with a neat sketch. | (3) |
| 8 | List the different types of geosynthetics. | (3) |
| 9 | Define the term groutability. | (3) |
| 10 | Explain the principle of ground freezing. | (3) |

PART B

Answer any one full question from each module, each carries 14 marks.

Module I

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|----|--|-----|
| 11 | a) What are the factors to be considered in the selection of suitable ground improvement techniques? | (6) |
| | b) Discuss the different mechanisms through which ground improvement can be achieved | (8) |

OR

- 12 a) Explain four sustainable methods of ground improvement. (6)
b) Describe the properties and application of different types of materials used for ground improvement. (8)

Module II

- 13 a) List and explain different types of equipments used for shallow surface compaction. (14)

OR

- 14 a) Outline how ground improvement is achieved by vibro flotation technique with a neat sketch. (14)

Module III

- 15 a) What are the factors controlling the selection of a dewatering method. (6)
b) Describe vacuum dewatering method with a neat sketch. (8)

OR

- 16 a) Discuss the advantages and disadvantages of preloading technique. (6)
b) Explain the installation procedure of prefabricated vertical drains. (8)

Module IV

- 17 a) With a neat sketch, explain the components of a soil nail wall system (14)

OR

- 18 a) Explain the construction procedure of micropiles. (7)
b) Discuss the design considerations for reinforced earth wall. (7)

Module V

- 19 a) Discuss the classification of grouting techniques in detail. (14)

OR

- 20 a) Explain the mechanism of lime stabilization. What are the factors controlling the properties of lime treated clay? (14)
