

Course Code: CE362**Course Name: GROUND IMPROVEMENT TECHNIQUES**

Max. Marks: 100

Duration: 3 Hours

Instruction: Draw neat sketches where necessary**PART A****Answer any two full questions, each carries 15 marks.**

Marks

- | | | |
|---|---|-----|
| 1 | a) Illustrate typical applications of grouting. | (9) |
| | b) Discuss the main points involved in ground improvement potential. | (6) |
| 2 | a) Assume that you are a geotechnical engineer and you are asked to suggest suitability of materials for reclamation of a construction site. Discuss the suitability of any two materials you would choose for the reclamation of the site. | (9) |
| | b) Classify the materials used for grouting. | (6) |
| 3 | a) Discuss the suitability of ground modification techniques according to different site conditions. | (8) |
| | b) Illustrate the method of permeation grouting to be done in a construction site. | (7) |

PART B**Answer any two full questions, each carries 15 marks.**

- | | | |
|---|---|------|
| 4 | a) Briefly explain the applications of ground anchors. | (5) |
| | b) Illustrate the construction method of lime stabilization in a typical pavement site. | (10) |
| 5 | a) Discuss how calcium chloride affects properties of soil. | (5) |
| | b) Illustrate the mechanism of rock bolt action around an excavation. | (10) |
| 6 | a) Discuss the effects of cement, on soil properties, used in chemical stabilization. | (8) |
| | b) Illustrate the sequence of soil nailed wall construction. | (7) |

PART C

Answer any two full questions, each carries 20 marks.

- 7 a) Briefly discuss the situations where the hydraulic modification techniques are being used (10)
- b) Assume that you are a geotechnical engineer in a construction site which consists of fine sand and silt. Explain briefly, any one deep dynamic compaction technique for ground improvement with justification. (10)
- 8 a) Illustrate the deep well drainage system and its practical applications. (10)
- b) Explain the significance of moisture-density relationships in the compaction of soils. (10)
- 9 a) Assume that you are a practicing geotechnical engineer. Illustrate with neat sketch how you will protect a finished structure from seeping ground water. (12)
- b) Write a short note on any one compaction control test (8)
