



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Seventh Semester, B.E. – Civil Engineering

Semester End Examination; Dec. - 2014

Ground Improvement Techniques

Time: 3 hrs

Max. Marks: 100

Note : Answer any FIVE full questions, selecting at least TWO full questions from each part.

PART – A

1. a. What is ground improvement? Explain the classifications of ground improvement techniques. 10
- b. Explain in detail the factors to be considered in the selection of the best soil improvement techniques. 10
2. a. What are the field compaction methods? Discuss the suitability of field compaction equipments. 12
- b. Explain the effect of grain size distribution on compaction for various soil types like BC soil, lateritic soil, coarse grained soil and micaceous soil. 8
- 3.a. Explain in detail the aim, principle and techniques of ‘HYDRAULIC MODIFICATION’. 8
- b. Explain the procedure of design of dewatering system including pipeline effects of dewatering 12
- 4.a Explain factors to be considered for the best performance of pre loading techniques 10
- b. Explain general principles of vertical drains. 5
- c. Explain with a sketch, the working of a sand drain. 5

PART – B

5. a. Explain the soil cement reactions when cement is used for stabilization of soils. 10
- b. Describe the use of “fly-ash” in cement stabilization. 10
6. a. What is lime stabilization? Discuss the soil – lime reactions. 10
- b. Which soils are suitable for lime stabilization? What are engineering benefits of lime stabilization? 10
7. a Explain the different types of grouting material. 10
- b. Discuss the various functions involved in soil and rock grouting. 10
8. a What are the applications of soil reinforcement? 10
- b. Describe the ground freezing method of stabilization. 10