Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SIXTH SEMESTER B.TECH DEGREE EXAMINATION(S), DECEMBER 2019

Course Code: CE362

Course Name: GROUND IMPROVEMENT TECHNIQUES

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

			Marks
1	a	Classify the major soil deposits in India based on different climatic conditions and amount of rainfall.	(8)
	b	What do you mean by the term "reclaimed" soil? Mention any two materials with specifications that are used in practice for reclamation purposes along with their drawbacks.	(7)
2	a	Which are the various approaches incorporated in association with ground improvement potential? Identify the various ground/soil conditions on the basis of these approaches.	(9)
	b	List the various ground modification techniques practiced in Engineering works. Explain any two ground modification techniques and its suitability in the field.	(6)
3	a	What is the principle behind the technique of grouting? According to Koerner, which are the basic functions of soil and rock grouting?	(5)
	b	What do you mean by "one shot" and "two shot" systems? Explain with neat sketches.	(5)
	c	Discuss the advantages and disadvantages of compaction grouting.	(5)

PART B

Answer any two full questions, each carries 15 marks.

4	a	How do polymers stabilize soil? Mention five natural resins used to stabilize soil along with their functions.	(9)
	b	Differentiate between cement and bituminous stabilization of soil	(6)
5	a	Explain the step – wise procedure for the construction of soil asphalt. Also mention the tests conducted to control the quality of work.	(8)
	b	Mention any four basic types of lime. How is lime stabilized base constructed?	(7)
6	a	Explain the procedure for the construction of soil nail. Also mention the various	(8)

materials used for soil nailing.

b What is the significance of addition – removal technique in mechanical stabilization of soil? (7)

PART C

Answer any two full questions, each carries 20 marks.

7 a How does particle size distribution affect moisture - density relationship when densified? Explain with suitable curves/ plots. (16)

b What are the suitability criteria for the various shallow surface compaction methods? (4)

8 a How can we check or control the quality of compaction? (5)

b Mention the various deep compaction techniques. Explain any two in detail with suitable sketch. (15)

9 a How does compaction affect the shear strength of soil? (4)

b Differentiate between progressive system and ring system of well point installation. (6)

c How is single stage well point system different from multi- stage well point system. Explain with the help of suitable diagrams. (10)

****