

Course Code: 23CE6D01

BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE
(AUTONOMOUS)

III-B.Tech II-Semester Regular Examinations (BR23), April - 2026
GROUND IMPROVEMENT TECHNIQUES

(CIVIL ENGINEERING)

Time: 3 hours

Max. Marks: 70

Question Paper consists of Part-A and Part-B
Answer ALL the question in Part-A and Part-B

PART-A (10X2 = 20M)

		Marks	CO	BL
1. a)	Define stone columns. How it is differ from normal drains.			
b)	What is Dynamic Compaction?	(2M)	CO1	BL2
c)	Discuss the uses of dewatering process in soils.	(2M)	CO1	BL2
d)	What is a well point? In which types of soil it is effective?	(2M)	CO2	BL4
e)	Write the objectives of grouting.	(2M)	CO2	BL1
f)	Name any three industrial wastes used in stabilization of soils.	(2M)	CO3	BL1
g)	Name the stability checks that are to be applied for reinforced earth walls	(2M)	CO3	BL1
h)	Discuss the importance of soil nailing.	(2M)	CO4	BL1
i)	What are the four major applications of geotextiles?	(2M)	CO4	BL4
j)	Write the classification of geosynthetics.	(2M)	CO5	BL2
		(2M)	CO5	BL1

PART-B (5X10 = 50M)

2a.	Discuss about blasting technique used in in-situ densification. Give an expression for calculating the radius of influence of a blasting technique.	10(M)	CO1	BL 4
(OR)				
3a.	Differentiate between consolidation and compaction. Give examples.	5(M)		
b.	What is vertical drain explain the design of vertical drain?	5(M)	CO1	BL 2
4a.	What is dewatering? Explain the practical situation and purpose with examples where the dewatering techniques are employed commonly.	10(M)	CO2	BL 2
(OR)				
5a.	Explain with neat sketches the electro osmosis technique of dewatering from soil.	10(M)	CO2	BL 2
6a.	Discuss in brief about various method of grouting by their mode of entry.	10(M)	CO3	BL 4
(OR)				
7a.	Explain the principle and application of soil-lime stabilization.	10(M)	CO3	BL 2

8a.	What are the components of reinforced earth wall? Discuss the load transfer mechanisms of reinforced earth walls. Also discuss the requirements of soil which can be used in reinforced earth wall construction.	10(M)	CO4	BL 4
(OR)				
9a.	What is reinforced earth? What are the applications of soil reinforcement?	5(M)	CO4	BL 2
b.	Write a short note on soil nailing.	5(M)		

10a	Discuss with neat sketches how effective the geocells in transferring the load onto the soft subgrade soil and also controlling the settlements.	10(M)	CO5	BL 4
(OR)				
11a	What are the different types of geotextiles? Discuss the differences between geogrids and geocells	10(M)	CO5	BL 4

