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Code No. : 18122 A

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD

Accredited by NAAC with A++ Grade

B.E. (Civil Engg.) VIII-Semester Main & Backlog Examinations, June-2022

Ground Improvement Techniques (PE-VI)

Time: 3 hours

Max. Marks: 60

Note: Answer all questions from Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	How do you categorize a soil is problematic as a construction material?	2	1	1	1
2.	What are the benefits of Ground Improvement?	2	1	1	1
3.	Explain the need for drainage and dewatering?	2	2	2	1
4.	What is deep well drainage	2	1	2	1
5.	What is cement stabilization?	2	1	3	1
6.	Out of reactions take place on addition of lime to wet soil what is the immediate reaction?	2	1	3	1
7.	Name the different methods of grout injection.	2	1	4	1
8.	Describe in a few words about rock anchoring	2	2	4	1
9.	Why geosynthetics are used in soil improvement?	2	1	5	1
10.	What are the principle requirements of a reinforcement material?	2	1	5	1
<i>Part-B (5 × 8 = 40 Marks)</i>					
11. a)	Distinguish shallow and deep compaction. What are the methods adopted under each category?	4	4	1	1
b)	What are the factors affecting compaction? Discuss in detail	4	2	1	1,3
12. a)	How are sumps and ditches used in dewatering? Discuss briefly about advantages of sumps and ditches in dewatering	5	2	2	1
b)	Explain the principle behind vacuum dewatering?	3	2	2	1
13. a)	What do you understand from the term chemical stabilization? Demonstrate your understanding on lime stabilization	4	3	3	1
b)	Illustrate how stabilization of soil is achieved by using cement?	4	4	3	1
14. a)	Examine in detail about various grouting techniques with their suitability?	4	4	4	1,3
b)	Illustrate soil nailing in protecting a deep excavation with a neatly labelled sketch.	4	4	4	1,3

15. a)	Discuss in detail about the role of Geosynthetics in filtration and erosion control?	4	2	5	1
b)	Explain how Geotextiles can be used as separators.	4	2	5	1
16. a)	Illustrate about how ground improvement is achieved by admixtures	4	4	1	1
b)	Examine the process of acceleration of consolidation by preloading	4	4	2	1,3
17.	Answer any <i>two</i> of the following:				
a)	Discuss about various classes of chemicals used in stabilization of soil.	4	2	3	1
b)	Explain briefly about construction and applications of Micro piles	4	2	4	1
c)	Demonstrate the role of geosynthetics in pavement construction? Describe in detail	4	3	5	1

M : Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	40%
iii)	Blooms Taxonomy Level – 3 & 4	40%
