PVP 19

Code: 19CE4702B

IV B.Tech - I Semester – Regular Examinations - DECEMBER 2022

GROUND IMPROVEMENT TECHNIQUES
(CIVIL ENGINEERING)

Duration: 3 hours Max. Marks: 70

Note: 1. This question paper contains two Parts A and B.
2. Part-A contains 5 short answer questions. Each Question carries 2 Marks.
3. Part-B contains 5 essay questions with an internal choice from each unit. Each question carries 12 marks.
4. All parts of Question paper must be answered in one place.

BL – Blooms Level CO – Course Outcome

PART – A

		BL	CO
1. a)	When we required ground improvement?	L1	CO1
1. b)	Explain the term forced vibration.	L1	CO2
1. c)	What do you know about drainage of soils?	L1	CO3
1. d)	Write the uses of soil reinforcement.	L1	CO4
1. e)	What will happen to sand that isn't reinforced and is reinforced with fiber when a certain cell pressure is applied to it?	L1	CO5

PART – B

			BL	CO	Max. Marks
UNIT-I					
2	a)	Explain the role of ground improvement in Foundation Engineering.	L2	CO1	6 M
	b)	Describe the clay salt interaction.	L2	CO1	6 M

OR					
3	a)	Explain the concept of electric charge on the clay surface.	L2	CO1	6 M
	b)	What is soil stabilization? Discuss the engineering benefits of cement stabilization?	L2	CO1	6 M
UNIT-II					
4	a)	Explain the terms: (i) degree of freedom (ii) simple harmonic motion	L2	CO2	6 M
	b)	Explain the term damping and give the characteristics of different types of damping.	L2	CO2	6 M
OR					
5	a)	Explain the vibroflotation technique in ground improvement.	L2	CO2	6 M
	b)	Describe the stone column technique in ground improvement.	L2	CO2	6 M
UNIT-III					
6	a)	What is dewatering? What are the objectives of dewatering?	L2	CO3	6 M
	b)	What are the advantages and disadvantages of electro-osmosis as compared with the conventional drainage system?	L3	CO3	6 M
OR					
7	a)	What is the selection criterion of fill material around drains?	L3	CO3	6 M
	b)	Explain the working of a vacuum well point system.	L3	CO3	6 M

UNIT-IV					
8	a)	Explain about the basic mechanism of reinforced soil with a neat sketch.	L3	CO4	6 M
	b)	For reinforced sand, consider the following: Angle of shearing resistance of unreinforced sand = 30^o, Friction factor, F = 0.15. Determine the angle of shearing resistance of the reinforced sand.	L3	CO4	6 M
OR					
9		Explain about internal and external stability of soil reinforcement.	L4	CO4	12 M
UNIT-V					
10		Explain about the analysis of strip footing on reinforced soil bed.	L4	CO5	12 M
OR					
11		Explain the Ultimate bearing capacity of footing on reinforced earth slab.	L4	CO5	12 M