TED (21) – 5014B
(REVISION-2021)

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Reg.No……
Signature…….

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER - 2023

GROUND IMPROVEMENT TECHNIQUES

[Maximum Marks:75] [Time: 3 Hours]

PART - A

I. Answer all the following questions in one word or one sentence. Each question carries 'one' marks.

(9 x 1 = 9 Marks)

		Module Outcome	Cognitive level
1	…….is the equipment commonly used for ground improvement by deep mixing.	M1.01	R
2	…… is a method of dewatering in which electric current is passed through a saturated soil and water is removed at cathode.	M1.04	R
3	Cement and soil blended material is referred to as ……..	M2.02	R
4	Write any one function of grout.	M2.03	R
5	…… is the property of the grout, that exhibits a reversible change in viscosity under shear stress.	M2.03	R
6	The type of stress resisted by the reinforcing element in the soil is ……..	M3.01	R
7	…….. are the shapes of reinforcing elements driven into an existing soil mass as per a pre-determined pattern.	M3.02	R
8	The consolidation test is performed in the consolidation test apparatus, known as the …….	M4.02	R
9	Write two common types of vertical drains.	M4.04	R

PART - B

II. Answer *any eight* questions from the following. Each question carries 'Three' marks.

(8 x 3 = 24 Marks)

		Module Outcome	Cognitive level
1	Define optimum moisture content (OMC).	M1.02	R
2	Describe the features of sheep foot roller used for surface compaction of soil.	M1.02	R

3	List any three methods of dewatering construction site.	M1.03	R
4	Briefly explain the purpose of dewatering work site.	M1.03	R
5	Define soil stabilization.	M2.01	R
6	Explain the concept of mechanical stabilization of soil.	M2.01	R
7	Explain any three properties of grout.	M2.03	R
8	Define reinforced earth wall. List its components.	M3.03	R
9	Predict the capability of geosynthetic for reduction of seepage of water through a water retaining embankment.	M3.04	A
10	Briefly explain the process of consolidation.	M4.01	R

PART - C

Answer all the questions from the following. Each question carries 'seven' marks.

(6 x 7 = 42 Marks)

		Module Outcome	Cognitive level
III.	Briefly explain the classification of ground modification techniques.	M1.01	U
	OR		
IV.	Illustrate the use of well point system for dewatering shallow excavations.	M1.04	A
V.	Compare cement and bitumen method of soil stabilization.	M2.02	U
	OR		
VI.	Provide the reasons for reduced pore water pressures beneath the downstream of the dam after grouting.	M2.04	A
VII.	Explain the factors that govern the effectiveness of a reinforcing element embedded in soil.	M3.02	U
	OR		
VIII.	Explain different types of reinforcing elements that can be installed in soil.	M3.02	U
IX.	Explain construction sequence of a reinforced earth wall.	M3.03	U
	OR		
X.	Explain how to use geosynthetic in soil for surface erosion control.	M3.04	A
XI.	Differentiate between compaction and consolidation.	M4.01	U
	OR		
XII.	Discuss spring analogy for primary consolidation.	M4.02	U
XII.I	Explain how to plot consolidation test results.	M4.03	U
	OR		
XIV.	Explain the general principle of installation of vertical drains.	M4.04	U

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