TED (15/19) – 6017
(Revision – 2015/19)

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Reg.No……………..
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, NOVEMBER – 2023

GROUND IMPROVEMENT TECHNIQUE

[Maximum Marks : 100] [Time : 3 hours]

PART – A

(Maximum Marks : 10)

Marks

I. Answer **all** questions in one or two sentences. Each question carries 2 marks.

1. Name any two raw materials used for making geosynthetics.
2. Define groutability ratio.
3. Define compressibility of soil.
4. Explain vertical drains.
5. Draw the failure envelope of a purely cohesive soil.

(5x2=10)

PART – B

(Maximum Marks : 30)

II. Answer any **five** of the following questions. Each question carries 6 marks.

1. List the important methods of ground improvement.
2. Write down the constructional procedure for lime stabilized bases.
3. List the different methods of stabilization of soil.
4. List out the causes of failure of reinforced earth walls.
5. List the factors to be considered while selecting field compaction procedures.
6. Write notes on grouting with soil.
7. List the advantages and disadvantages of direct shear test.

(5x6=30)

PART – C

(Maximum Marks : 60)

(Answer **one full** question from each unit. Each full question carries 15 marks)

UNIT – I

III. (a) List the objectives of dewatering. (7)

(b) Draw and explain a multistage well point system of dewatering. (8)

OR

IV. (a) Explain deep well dewatering system. (7)

(b) Explain vacuum dewatering system. (8)

UNIT – II

V. (a) Discuss the different types of rollers used for the densification of soil. (9)

(b) Explain compaction grouting. (6)

OR

VI. (a) Explain soil-cement. Also, list the steps involved in construction of soil-cement. (7)

(b) Explain the method of jet grouting with a neat sketch. (8)

UNIT –III

VII. (a) Discuss any four engineering applications of geomembrane used as a containment or barrier. (8)

(b) Explain the mechanism of reinforced earth. (7)

OR

VIII. (a) Explain the sequence of construction of a reinforced earth wall. (7)

(b) Explain the different applications of geosynthetics for ground improvement. (8)

UNIT – IV

IX. (a) Explain the laboratory procedure for determination of consolidation characteristics of soil. (8)

(b) Explain the direct shear test to measure the shear strength of soil. (7)

OR

X. (a) Discuss the different preloading methods for ground improvement. (7)

(b) Compare consolidation and compaction of soil. (8)

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