

TED (15) – 5013

(REVISION — 2015)

Reg. No.....

Signature .....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2017

**GEOTECHNICAL ENGINEERING**

[Time : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

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

1. What is soil mechanics ?
2. Define Shrinkage ratio.
3. What is effective pressure ?
4. List different soil samples.
5. Distinguish shallow and deep foundations.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Explain the importance of soil engineering.
2. Explain Uniformity coefficient and effective size.
3. Define the terms free water, adsorbed water and capillary water.
4. Describe seismic refraction method.
5. Describe effect of water table on bearing capacity of soil.
6. Sketch different types of shallow foundations.
7. Describe Pile erecting methods.

(5×6 = 30)

## PART — C

(Maximum marks : 60)

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

## UNIT — I

- III (a) Explain history of development of soil mechanics. 5
- (b) Explain the procedure for determining water content of soil by oven drying method. 5
- (c) Explain consistency limits of soil. 5

OR

- IV (a) Explain the procedure to determine the Shrinkage limits of soil. 8
- (b) Define the terms Shrinkage ratio and plasticity index of soil. 7

## UNIT — II

- V (a) Explain the procedure for determining the coefficient of permeability of soil by constant head permeability test. 7
- (b) Describe various field compaction methods for different types of soil. 4
- (c) Explain factors affecting compaction of soil. 4

OR

- VI (a) List the factors affecting permeability. 6
- (b) Find Max. dry density of soil sample having sp. gr. of 2.7 and OMC = 16%. 9

## UNIT — III

- VII (a) State Terzaghi's theory of bearing capacity. 8
- (b) Describe Plate load test with sketch. 7

OR

- VIII (a) What is the need of General Exploration and Detailed Exploration. 8
- (b) Briefly explain different types of Boring methods. 7

## UNIT — IV

- IX (a) Explain the procedure for design of a continuous footing based on Rankine's theory. 8
- (b) Classify and explain Pile foundations. 7

OR

- X (a) Explain well foundation and well curb with figure of components. 8
- (b) Identify causes of failure of well foundations and rectifying methods. 7