

TED (15) – 2011

(REVISION — 2015)

Reg. No.....

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**SECOND SEMESTER DIPLOMA EXAMINATION IN CIVIL  
ENGINEERING — MARCH, 2016**

**SURVEYING - I**

[Time : 3 hours

(Maximum marks : 100)

**PART — A**

(Maximum marks : 10)

Marks

I Answer the following questions in one or two sentences. Each question carries 2 marks.

1. Define the term surveying.
2. Distinguish magnetic dip and declination.
3. List the various types of bench marks.
4. Define the term line of collimation.
5. List any two uses of contour map.

(5×2=10)

**PART — B**

(Maximum marks : 30)

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

1. Distinguish the terms
  - (a) Base line
  - (b) Check line
  - (c) Tie line
2. With the aid of a neat sketch, explain the method of radiation in plane table surveying.
3. Explain briefly about local attraction.
4. List the important axes of dumpy level and the relationship between them.
5. Determine the elevation of the given points with respect to the given bench mark by height of collimation method. The staff readings are 1.850, 1.650, 1.020, 2.850 and 3.010. The first reading was taken on a bench mark of reduced level 58.550m. Apply arithmetic check.
6. Differentiate the terms :
  - (a) Contour
  - (b) Contour interval
  - (c) Horizontal equivalent.
7. List the characteristics of contour lines.

(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) List the accessories used in plane table surveying and their uses. 9  
 (b) List the factors to be considered while selecting the survey stations. 6

OR

- IV (a) Describe with the aid of a neat sketch the intersection method of plane table surveying. 9  
 (b) Explain the method of setting out right angle from a survey line using cross staff. 6

## UNIT — II

- V (a) Calculate the included angles from the given whole circle bearings.

Line	Whole circle bearing
AB	218° 00'
BC	155° 30'
CD	75° 30'
DE	350° 00'
EF	320° 00'
FG	281° 00'
GH	160° 00'

- (b) Define the term meridian and describe the different types of meridians. 9  
 6

OR

- VI (a) The fore bearings and back bearings of a closed traverse are given below. Check the bearings for local attraction and find the corrected bearings.

Line	Fore bearing	Back bearing
AB	78° 30'	259° 30'
BC	350° 00'	171° 30'
CD	282° 30'	102° 30'
DE	242° 00'	60° 30'
EA	124° 00'	303° 00'

- (b) Differentiate between 9  
 (i) WCB & RB  
 (ii) True Bearing & Magnetic bearing 6

## UNIT — III

- VII (a) The following staff readings were observed successively with a level, the instrument having been moved after the second, fifth and eighth readings. The first staff reading was taken with the staff held on a bench mark of reduced level +50.000. Enter the readings in the level field book form and find the reduced levels of all the points by Rise and Fall method and apply the check. Readings : 0.875, 1.520, 0.685, 2.675, 2.215, 1.895, 3.285, 3.330, 3.585 and 2.775.
- (b) List and explain the functions of the parts of a dumpy level.

OR

- VIII (a) An observer standing on the deck of a ship just sees a light house. The top of the light house is 52m above the sea level and the height of the observer's eye is 7m above the sea level. Find the distance to the observer from the light house. 9
- (b) List the steps involved in temporary adjustments of a dumpy level and state the necessity. 6

## UNIT — IV

- IX (a) Explain longitudinal sectioning and cross sectioning. 9
- (b) Explain different methods of contouring. 6

OR

- X (a) The area within the contour line at the site of reservoir and the face of the proposed dam are as follows

Contour	Area (m <sup>2</sup> )
101	1100
102	13200
103	96000
104	151000
105	853000
106	968000
107	1376000

Taking 101 as the bottom level of the reservoir and 107 as the top level, calculate the capacity of the reservoir using Prismoidal rule. 9

- (b) What do you mean by permanent adjustment of a dumpy level and its necessity. 6