

SECOND SEMESTER DIPLOMA EXAMINATION IN ENGINEERING/  
TECHNOLOGY—OCTOBER, 2014

**SURVEYING – I**

[Common for CE, AR, QS, EV and WR]

[Time : 3 hours

(Maximum marks : 100)

Marks

**PART—A**

(Maximum marks : 10)

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

1. Write down the cardinal principal of surveying.
2. Name four major instruments required for Chain Survey.
3. What is mean by bearing ?
4. Define Bench Mark.
5. What do you understand "Contour" ?

(5×2=10)

**PART—B**

(Maximum marks : 30)

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

1. Describe the different types of chains used for linear measurements.
2. What is well conditional triangle, why it is necessary to use well conditioned triangles ?
3. Briefly explain how local attraction is detected and eliminated ?
4. List out the advantages and disadvantages of Plane Table Survey.
5. Describe the Height of Instrument and Rise & Fall methods of computing the levels, also discuss the merits and demerits.
6. Differentiate between permanent and temporary adjustments of a Dumpy Level.
7. What are the characteristics of contours ?

(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) Briefly explain the direct method of measuring distances, if the ground is sloping. 7  
 (b) Prepare a survey plan and determine the area of the field from the following observations :

	E	
	625	
D 65	520	
	500	45 F
C 73	420	
	310	61 G
B 58	160	
	0	
	A	
	OR	

8

- IV (a) Explain with neat sketch, intersection method of plane table survey. 7  
 (b) Describe briefly the use of various accessories of plane table. 8

## UNIT—II

- V (a) Give in a tabular form, the difference between prismatic compass and surveyor's compass. 7  
 (b) The following are the bearings taken on a closed compass traverse. Compute the interior angles and correct them for observational errors. Assuming the observed bearing of the line CD to be correct adjust the bearing of the remaining sides.

Line	F.B	B.B.
AB	80° 10'	259° 0'
BC	120° 20'	301° 50'
CD	170° 50'	350° 50'
DE	230° 10'	49° 30'
EA	310° 20'	130° 15'

8

OR

- VI (a) Draw a neat sketch of a prismatic compass and identify the parts. 7  
 (b) The following bearings were observed with a compass. Calculate the interior angles:

Line	Fore bearing
AB	64° 30'
BC	130° 0'
CD	47° 0'
DE	210° 30'
EA	310° 30'

8

## UNIT—III

- VII (a) Define the following terms used in leveling :
- (i) Datum (ii) Mean sea level (iii) Bench Mark. 6
- (b) A page of level field book was defaced so that the only legible figures were :
- (i) Consecutive entries in the column of reduced levels : 55.565 (B. M.), 54.985 (C.P.), 55.170, 56.265, 53.670, 53.940 (C.P.), 52.180, 52.015, 51.480, (C.P.), 53.145, 54.065 (T.B.M.).
- (ii) Entries in back sight column : 1.545, 2.310, 0.105, 3.360 in order from the top of the page. Reconstruct the page as booked and check your work. 9

OR

- VIII (a) What are the different types of leveling staff ? State the merits and demerits of each. 7
- (b) The following consecutive readings were taken with a level and 5 metre leveling staff on continuously sloping ground at a common interval of 20 meters : 0.385, 1.030, 1.925, 2.825, 3.730, 4.685, 0.625, 2.005, 3.110, 4.485. The reduced level of the first point was 208.125m. Rule out the page of a level field book and enter the above readings. Calculate the reduced level of points by rise and fall method and also the gradient of the line joining the first and last point. 8

## UNIT—IV

- IX (a) Write the procedure for profile leveling. 7
- (b) Define the following items :
- (i) Contour lines (iii) Horizontal equivalent
- (ii) Contour interval (iv) Contour gradient. 8

OR

- X Describe various methods of contouring. Discuss the merits and demerits of each. 15
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