

SECOND SEMESTER DIPLOMA EXAMINATION IN ENGINEERING/  
TECHNOLOGY—OCTOBER, 2012

**SURVEYING – I**  
(Common for CE, AR, QS, EV and WR)

[Time : 3 hours

(Maximum marks : 100)

## PART—A

Marks

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

1. Write the basic methods of ranging out survey lines.
2. List tape corrections.
3. What are the different types of meridians ?
4. Define change point.
5. What are the different types of levelling staves ? (5×2=10)

## PART—B

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

1. What do you mean by reciprocal ranging ? Explain with a neat sketch.
2. What is orientation ? What are the different methods of orientation of a plane table ?
3. Differentiate between :
  - (i) True meridian and magnetic meridian.
  - (ii) Declination and dip.
  - (iii) Whole circle bearing and quadrantal bearing.
4. A closed compass traverse ABCD was conducted round a lake and the following bearings were obtained. Determine which of the following stations are suffering from local attraction and give the values of the bearings :

<i>Line</i>	<i>Fore bearing</i>	<i>Back bearing</i>
AB	74°20'	256°0'
BC	107°20'	286°20'
CD	224°50'	44°50'
DA	306°40'	126°0'

5. Write the methods of reduction of levels and give their merits and demerits.

6. The following staff readings were obtained when running a line of levels between two benchmarks :  
 A (RL = 100.000) and B (RL = 98.000) 1.950 (A), 2.900, 3.100, 2.950 (change point), 1.500, 1.910, 3.250 (change point), 2.510, 3.150, 0.450 (change point), 1.350, 2.750, 2.810 (B). Enter and reduce the levels in a page of level book. Determine the error in the level of B.
7. What is balancing of sights ? What is its importance in the field ? (5×6=30)

## PART—C

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

## UNIT—I

- III (a) What is an offset ? What are the different types of offsets ? Explain swing offset. 8  
 (b) How would you overcome the chaining problem if there are any obstacles on the chain lines assuming that :  
 (i) Chaining round the obstacle is possible  
 (ii) Chaining round the obstacle is not possible. 7

OR

- IV (a) Explain the procedure for plane table traversing. 8  
 (b) Write short notes on :  
 (i) Alidade (ii) Plumbing fork (iii) Trough compass. 7

## UNIT—II

- V (a) How would you determine bearings of the lines from the bearings of one line and included angle ? Explain with sketch. 8  
 (b) A river is flowing from west to east for determining the width of the river two points A and B are selected on the southern bank such that the distance AB=75 m. Point A is westward. The bearing of a tree C on the northern bank are observed to be  $38^\circ$  and  $338^\circ$  respectively from A and B. Calculate the width of the review. 7

OR

- VI (a) The following bearings were observed for a closed traverse ABCDFA. Line AB =  $140^\circ 30'$ , line BC =  $80^\circ 30'$ , line CD =  $340^\circ 0'$ , line DE =  $290^\circ 30'$ , line EA =  $230^\circ 30'$ . Calculate the included angles. 8  
 (b) What is declination ? What are the different types of variations in declination ? 7

## UNIT—III

- VII (a) Differentiate between telescopic levelling staff and target staff. 8  
 (b) Define sensitiveness of the bubble tube. How the sensitiveness of the bubble can be increased ? 7

OR

- VIII (a) What is balancing back sight and foresight? Explain. By this what kind of errors can be eliminated? 8  
(b) What are the temporary adjustments of a level? 7

## UNIT—IV

- IX (a) Write the procedure for reciprocal levelling. 8  
(b) List the instrumental errors and personal errors in levelling. 7

## OR

- X (a) What is profile levelling? Write the purpose of conducting profile levelling. 8  
(b) Write the characteristics of contour. 7
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