

S₂-CE

Shebeera k.v

1111 (10) 3002

Reg. No.

(REVISION 2010)

Signature

SECOND SEMESTER DIPLOMA EXAMINATION IN ENGINEERING/
TECHNOLOGY—MARCH, 2011

SURVEYING — I

(Common for CE, AR, QS, EV and WR)

[Time : 3 hours

(Maximum marks : 100)

PART—A

(Answer *all* questions in one or two sentences. Each questions carries 2 marks)

Marks

- I 1. Give the primary classification of survey.
2. What do you mean by centering of the plane tabling?
3. Define magnetic meridian.
4. Describe the concept of level surface.
5. Differentiate contour interval and horizontal equivalent. (5x2=10)

PART—B

(Answer any *five* questions. Each question carries 6 marks)

- II 1. Explain the necessity of various survey lines used in field.
2. Describe the relative merits of plane tabling. 3/4
3. Convert the following W.C.B. to R.B :
(i) $78^{\circ} 30'$ (ii) $145^{\circ} 20'$ (iii) $236^{\circ} 45'$ (iv) $336^{\circ} 0'$
4. Describe magnetic declination. How would you find the true bearing of a line?
5. Describe the different classification of levelling staff. 2/2
6. Describe the correction for curvature and refraction. 2/45
7. What is meant by a contour gradient? Describe how you would locate it in the contour map? (5x6=30)

[295]

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PART—C

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

UNIT—I

III 1. Illustrate the procedure for the method of plane tabling when the distance between the point and instrument stations cannot be measured accurately.

2. What are the conventional signs used to denote the following :

- (i) Survey line (iv) Cultivated land (vi) North
 (ii) Double line railway (v) Traverse station (vii) Marsh land
 (iii) Embankment

OR

IV 1. Explain the method of orientation of plane table which can be precisely done in field.

2. A survey line PQ intersects a hillock. In order to extend the line beyond the obstacle, a perpendicular QR, 100 m long, is set out at Q. From R two lines RS and RT are set out at angles of 45° and 60° with RQ respectively. Find the lengths RS and RT such that the point S and T may lie on the prolongation of line PQ and also find the obstructed distance QS.

UNIT—II

V 1. The following bearings were observed in running a compass traverse :

Line	Fore Bearing	Back Bearing
AB	$47^\circ 30'$	$227^\circ 30'$
BC	$135^\circ 15'$	$315^\circ 15'$
CD	$190^\circ 30'$	$10^\circ 30'$
DA	$295^\circ 30'$	$115^\circ 30'$

Calculate the included angle of the traverse.

2. Describe the various sources of errors occur in prismatic compass survey.

OR

VI 1. The following bearings were taken in running a compass traverse :

Line	Fore Bearing	Back Bearing
AB	$124^\circ 30'$	$304^\circ 30'$
BC	$68^\circ 15'$	$246^\circ 0'$
CD	$310^\circ 30'$	$135^\circ 15'$
DA	$200^\circ 15'$	$17^\circ 45'$

At what stations do you suspect local attraction ? Find the corrected bearings of the lines.

2. You are to organise and lead a team for conducting a compass survey work. During plotting, if it is small distance by which the traverse fail to close. Explain how would you close the traverse.



FB

AB

UNIT—III

VII The following readings were taken with a dumpy level and a 4 m levelling staff on a continuously sloping ground at 30 m intervals :

0.680, 1.455, 1.855, 2.330, 2.885, 3.380, 1.055, 1.860, 2.265, 3.540, 0.835, 0.945, 1.530 and 2.250.

Reduce level of the starting point was 80.750 m.

Rule out a page of a level field book and enter the above readings. Calculate the reduce levels of all the points by height of collimation method. Apply the usual checks and determine the gradient of the line joining the first and last point.

15

Or

VIII During fly levelling following note is made :

B.S. = 0.62, 2.05, 1.42, 2.63 and 2.42 metres.

I.S. = 2.44, 1.35, 0.53 and 2.41 metres.

The first B.S. was taken on a BM of RL +100.00 metres. From the last B.S. it is required to set 4 pegs each at distance of 30 metres on a raising gradient 1 in 200. Enter these notes in level field book form and calculate the RL of the top of each peg by rise and fall method. Also calculate the staff reading on each peg and apply the usual checks

15

UNIT—IV

IX 1. Discuss various methods of interpolating the contours and the merits or demerits of each.

8

2. How would you draw the profile of a road from the field notes?

7

Or

X 1. Explain the different characteristics of contour.

8

2. How do you estimate the volume of a storage reservoir from contour map?

7

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