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Third Semester B.E. Degree Examination, June/July 2015 Surveying – I

Time: 3 hrs.

Max. Marks:100

**Note: 1. Answer any FIVE full questions, selecting
atleast TWO questions from each part.
2. Missing data, if any, may be suitably assumed.**

PART – A

1. a. List the different methods of surveying. What are their objectives or place of application? (06 Marks)
b. Bring out the difference between 'Precision' and 'Accuracy'. (06 Marks)
c. What is map? State the numbering method in a map. (08 Marks)
2. a. Brief the working principle of an EDM. (06 Marks)
b. With a neat sketch describe the concept of "Reciprocal Ranging". (06 Marks)
c. The length of a line measured with 20.0 m chain was 1341.0m. The same line when measured with 30.0 m chain which was 20 cm too short was found to be 1350.00 m. Determine the error in 20.00 m chain. (08 Marks)
3. a. Explain with a neat sketch, the working of and use of an "Optical Square". (06 Marks)
b. Write the procedure to overcome an obstacle for chain surveying when both vision and chaining is obstructed. (06 Marks)
c. Two stations 'P' and 'Q' were taken on southern side bank of a river flowing west to east pt. 'P' is westwards of pt 'Q', at 75 m apart. The bearings of a tree 'R' on the northern side of the bank is observed to be equal to 38° and 338° respectively from 'P' and 'Q'. Calculate the width of the river. (08 Marks)
4. a. Distinguish between :
i) WCB and QB
ii) Dip and declination
iii) Magnetic bearing and true bearing with reference to compass surveying. (06 Marks)
b. State how 'Prismatic Compass' is different from 'Surveyors compass'. (06 Marks)
c. Following is a closed traverse ABCDA conducted clockwise. Fore bearings of the lines are as follows : determine the values of included angle and apply the check

Line	AB	BC	CD	DA
FB	40°	70°	210°	280°

(08 Marks)

PART – B

5. a. Explain 'Bowditch's rule' adopted for adjusting a closed traverse. (08 Marks)
b. The fore and back bearings of a closed traverse is given below. Correct the bearing for local attraction, by identifying the stations affected by local attraction. (12 Marks)

Line	AB	BC	CD	DA
FB	$32^\circ 30'$	$124^\circ 30'$	$181^\circ 0'$	$289^\circ 30'$
BB	$214^\circ 30'$	$303^\circ 15'$	$1^\circ 0'$	$108^\circ 45'$

- 6 a. Define the following terms with respect to leveling. :
 i) Bench mark ii) Backsight iii) Change point vi) Fore sight v) Reduced level
 vi) Height of collimation. (06 Marks)
- b. What are the 'Temporary Adjustments' of a Dumpy level? (06 Marks)
- c. Following observations refer to a 'Reciprocal Leveling'. Calculate the elevation of pt 'B' if that of 'A' is 100.150 m, by deterring the collimation error. (08 Marks)

Inst at	Staff reading on		Remarks
A	1.824	2.748	AB = 1000.00
B	0.928	1.606	

- 7 a. Enumerate the characteristics of contour lines. (08 Marks)
- b. The following readings were taken with a dumpy level on a sloping ground at a common interval of 5.0 m. The RC of first point is 200.00. Rule out a page of level book and enter the readings. Calculate the reduced levels of all the points and the gradient between first and last point. 0.405, 1.990, 2.030, 3.120, 3.700, 0.910, 1.815, 2.750, 3.660, 0.430, 1.455. (12 Marks)
- 8 a. Explain the procedure adopted to measure the distance between two mutually inaccessible points by plane table surveying. (06 Marks)
- b. State the importance of orientation in plane tabling. What are the methods available for orientation? (06 Marks)
- c. Describe the method of 'Resection' by 'Bessels graphical method". (08 Marks)

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