U.S.N

P.E.S. College of Engineering, Mandya - 571 401
(An Autonomous Institution affiliated to VTU, Belgaum)
Third Semester, B.E. - Civil Engineering
Semester End Examination; Dec. - 2015
Surveying - I

Time: 3 hrs   *Max. Marks: 100*

Note: i) Answer **FIVE** full questions selecting **ONE** full question from each **unit**.
ii) Missing data if any, may suitably assumed.

UNIT - I

1 a. Distinguish between plane surveying and Geodetic Surveying.   6

   b. Explain the basic principles of surveying.   6

   c. Write a brief note on classification of surveying.   8

2 a. Explain the direct method or method of stepping of chaining along sloping ground with a neat sketch.   6

   b. Write a note on EDM device.   4

   c. A 30 m chain was tested before commencement of the day's work and found to be correct. After chaining 300 m. The chain was found to be 5 cm too long. At the end of days work, after chaining a total distance of 5400 m, the chain was found to be 10 cm too long. What is the true distance chained?   10

UNIT - II

3 a. With a neat sketch, Explain the working of optical square.   6

   b. With a neat sketches, explain obstacles in chaining.   6

   c. There is an obstacle in the form of a pond on the main line AB. Two points C and D were taken on the opposite sides of the pond. On the left of CD, a line CE was laid out 120 m in length and second line CF 80 m was laid on right to CD, such that E, D and F are in the line. Determine the obstructed length CD. Given; ED = 180 m and DF = 165 m.   8

4 a. What is Simpson's rule? Derive an expression for it.   10

   b. The following perpendicular offset were taken at 10 m intervals for a survey line to an irregular boundary line.
   3.25, 5.60, 4.20, 6.65, 8.75, 6.20, 3.25, 4.20, 4.65
   Calculate the area enclosed between the survey line, the irregular boundary line, and the first and last offects by the application of (i) average ordinate rule (ii) Trapezoidal rule and (iii) Simpson's rule.   10

UNIT - III

5 a. Differentiate between prismatic compass and survey's compass.   6

   b. Distinguish between : i) Magnetic meridian and true meridians ii) WCB and QB
   iii) Itogonic line and Agonic line   6

   c. The following bearings were observed with prismatic compass. Calculate interior angles. Apply check.   8

Line	Fore Bearing
AB	64º 30′
BC	130º0′
CD	47º0′
DE	210º30′
EA	310º30′

6 a. List the fundamental lines of a transmit theodolite and Establish the desired relationships among them. **8**

b. Explain temporary adjustments of a Theodolite. **6**

c. Explain the General procedure for measuring horizontal angles. **6**

UNIT - IV

7 a. Explain the following terms with sketches :

i) level surface   ii) Level line   iii) Horizontal line   iv) Line up collimation   v) Bench mark **10**

b. The following staff Readings were observed with a level the instrument having been moved after second, fourth and Eight reading.

0.875, 1.235, 2.310, 1.385, 2.930, 2.930, 3.125, 4.125, 0.120, 1.875, 2.030, 2.765

The first reading was taken with the staff held on a benchmark elevation 132.135 m. Enter the readings in level book form and reduce the levels. Find also the difference in level between the first and last points. **10**

8 a. Explain the curvature and net refraction correction and derive the equation. **8**

b. The following observations were taken in reciprocal leveling

	Staff reading @	
Inst. @	A	B
A	1.625	2.545
B	0.725	1.405

Determine the R.L. of B if that of A is 500.26 m. Also calculate the angular error in collimation, if the distance between A and B is 1000.00 m. **6**

c. The following consecutive readings were taken with a level of 5 m staff on continuously sloping ground at a common interval of 20 m.

0.385, 1.030, 1.925, 2.825, 3.730, 4.685, 0.625

2.005, 3.110, 4.485, R.L. of the first point is 208.125, Tabulate the reading and calculate the R.L. of all the points by rise and fall method and also find the gradient of the line joining of first and last point. **6**

UNIT - V

9 a. With a neat sketch, explain the characteristics of contour. **10**

b. Discuss the methods of interpolating the contours. **10**

10 a. Discuss the advantages and disadvantages of plane table survey. **8**

b. With a neat sketch explain the following methods :

(i) Radiation (ii) Intersection. **12**

✳ ✳ ✳ ✳