CBCS SCHEME

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18CV35

Third Semester B.E. Degree Examination, June/July 2023
Basic Surveying

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-1

1 a. Discuss in detail with sketches the principles of surveying. **(10 Marks)**

b. Write a note on Survey of India Map numbering system with examples. **(10 Marks)**

OR

2 a. With figure discuss how do you carry out direct and indirect ranging of lines. **(10 Marks)**

b. Write note on :
i) Electronic Distance Measurement
ii) Booking of Field Notes
iii) Obstacles in chaining and ranging **(10 Marks)**

Module-2

3 a. What is local attraction in compass survey? Give its relevance. **(08 Marks)**

b. The following bearings were taken in a closed compass traverse.

Line	Fore Bearing	Back Bearing
AB	48° 25′	230° 00′
BC	177° 45′	356° 00′
CD	104° 15′	284° 55′
DE	165° 15′	345° 15′
EA	259° 30′	79° 00′

State the stations affected by local attraction and by how much and determine the correct bearings. **(12 Marks)**

OR

4 a. Give the relevance of magnetic dip and declination in compass survey. **(08 Marks)**

b. The magnetic bearing of a line is N 60° 30′ W in 1994 when the declination was 5° 10′ E. Find the present magnetic hearing if declination is 3° W. **(06 Marks)**

c. Distinguish between True bearing and Magnetic bearing. **(06 Marks)**

Module-3

5 a. Describe with sketches the collimation method of reducing levels and compare the collimation method with the rise and fall method. **(10 Marks)**

b. The following consecutive readings were taken with a level and 4.0m staff on a continuously sloping ground at a common interval of 30m:
0.780, 1.535, 1.955, 2.430, 2.985, 3.480, 1.155, 1.960, 2.365, 3.640, 0.935, 1.045, 1.630 and 2.545.
The reduced level of the first point A = 180.750m. Calculate the reduced levels of the points by the collimation method and get the gradient of the joining first and last point? **(10 Marks)**

OR

6 a. Discuss on the curvature and refraction effect in levelling? **(10 Marks)**

b. The following notes refers to the reciprocal levels taken with one level.

Instrumentation station	Staff readings on		Remarks
	A	B	
A	1.030	1.630	Distance AB = 800m
B	0.950	1.540	RL of A = 450m

Find the true difference of elevation between A and B. Also find the collimation error of instrument. **(10 Marks)**

Module-4

7 a. State the advantages and disadvantages of plane tabling. **(10 Marks)**

b. Discuss with sketches the intersection and resection method of plotting of points in plane tabling. **(10 Marks)**

OR

8 a. State the 3-point problem and explain how it is solved by the graphical method. **(10 Marks)**

b. Discuss on the errors in plane table survey. **(10 Marks)**

Module-5

9 a. State and prove the trapezoidal and Simpson's rule for determining the area. **(10 Marks)**

b. Calculate the area of the zero circle with the following data. The multiplying constant is 100 cm^2.

Initial Readings	Final Reading	Position of anchor point	Remarks
6.520	2.724	Outside the figure	Zero of the disk crossed fixed index mark once in clockwise direction
1.222	7.720	Inside the figure	Aero of the disc crossed the fixed index marks twice in the anticlockwise direction

(10 Marks)

OR

10 a. Discuss in detail indirect method of contouring and direct method of contouring. **(10 Marks)**

b. From a topographical map, the areas enclosed by contour lines for a proposed dam are given below. Find the volume of the impounded water using trapezoidal formula and prismoidal formula.

Contours (m)	Area enclosed (Hectares)
500	20
505	100
510	400
515	900
520	1100

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(10 Marks)

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