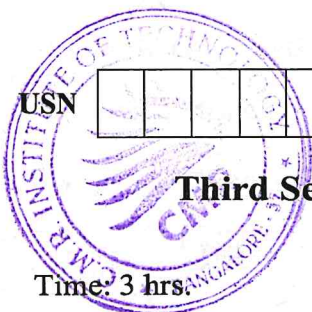


CBCS SCHEME



18CV35

Third Semester B.E. Degree Examination, Jan./Feb. 2021

Basic Surveying

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- Define surveying. Discuss the classification of surveying. (10 Marks)
 - What is ranging? Explain the indirect method for ranging with neat sketch. (08 Marks)
 - What is well conditioned triangle? (02 Marks)

OR

- Write short notes on optical square and prism square. (06 Marks)
 - A big pond obstructs the chain line such that P and T are on the opposite sides of a pond and line PQ and PR were selected on the left hand side and Right hand side respectively. So that point Q, T and R were in straight line. Find length PT. Take PQ 150m, PR = 230m, QT = 75m, RT = 100m. (08 Marks)
 - Explain briefly chains on sloping ground by stepping method. (06 Marks)

Module-2

- Differentiate between :
 - True meridian and magnetic meridian
 - Dip and declination
 - Agonic and isogonic lines.(06 Marks)
 - The following bearings were observed with compass. Calculate the interior angles and draw rough diagram.

Line	AB	BC	CD	DE	EA
Bearing	60°30'	122°0'	46°0'	205°30'	300°

- What is local attraction? How it is detected and eliminated? Also give the reason for it. (08 Marks)
 - (06 Marks)

OR

- What is traversing? What are the different types of traversing? (04 Marks)
 - What is closing error? Explain the Bowditch rule of graphical adjustment with sketch. (08 Marks)
 - Following are the observed length and bearings of the lines of a closed traverse ABCDEA. The length and bearing of line EA emitted, calculate it.

Line	Length (m)	Bearings
AB	204	87°30'
BC	226	20°20'
CD	187	280°0'
DE	192	210°30'
EA	?	?

(08 Marks)

Module-3

- 5 a. Explain the following terms. i) Elevation ii) Benchmark iii) Datum iv) Mean sea level. (04 Marks)
- b. What do you understand by balancing of sight? With figure explain how the errors are eliminated. (06 Marks)
- c. The following is the page of a level book. Find out the missing reading(X) and complete the level book. Apply usual arithmetical check.

Sl.No.	BS	IS	FS	HI	RL	Remark
1	4.000			X	X	
2		X			195.935	
3	2.150		3.995	X	X	
4		2.415			195.240	BM
5		1.665			X	
6		X			200.770	
7	3.610		X	X	X	
8			1.715		196.985	

(10 Marks)

OR

- 6 a. Write short notes on : i) Curvature and Refraction error ii) Barometric leveling and fly leveling iii) Collimation error and hypsometry. (06 Marks)
- b. Describe the procedure for reciprocal leveling with neat sketch. (06 Marks)
- c. The following observations were taken in reciprocal leveling. Determine the R.L of B if that of A is 100.150m. Also calculate the collimation error if AB = 1000m.

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

(08 Marks)

Module-4

- 7 a. Describe briefly radiation method and intersection method of plane tabling. (10 Marks)
- b. Define two point problem. Explain the graphical method of solution of two point problem with figure. (10 Marks)

OR

- 8 a. Write short notes on : i) Orientation of plane table ii) Triangle of error iii) Alidade. (06 Marks)
- b. Discuss the temporary adjustments of plane table. (06 Marks)
- c. What are the advantages and disadvantages of plane table? (08 Marks)

Module-5

- 9 a. What is contour? What are the uses of contour lines? (08 Marks)
- b. A road embankment is 11m wide at the formation level and has side slope 1 : 2(V : H). The ground level at every 80m along centre line are shown in table. The formation level at zero chainage is 123.0 and embankment having a rising gradient 1 : 100 calculate the volume of earthwork by trapezoidal and primordial rule.

Dist.	0	80	160	240	320
RL	120.8	122.5	123.4	123.8	124.5

(12 Marks)

OR

- 10 a. Define the following terms : i) Contour interval ii) Interpolation of contour iii) Horizontal equivalent v) Contour gradient. (04 Marks)
- b. What is planimeter? Explain the polar planimeter along with essential parts. (12 Marks)
- c. Determine the area of plan from following data. Needle point out side plan. Zero of dial passed index mark once in clockwise direction : Initial reading = 8.364
Final reading = 4.234. (04 Marks)