CBCS SCHEME

USN | | | | | | | | | |

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

1 a. Define surveying. Discuss the classification of surveying. **(10 Marks)**

b. What is ranging? Explain the indirect method for ranging with neat sketch. **(08 Marks)**

c. What is well conditioned triangle? **(02 Marks)**

OR

2 a. Write short notes on optical square and prism square. **(06 Marks)**

b. 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)**

c. Explain briefly chains on slopping ground by stepping method. **(06 Marks)**

Module-2

3 a. Differentiate between :

i) True meridian and magnetic meridian ii) Dip and declination iii) Agonic and isogonic lines. **(06 Marks)**

b. 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°

(08 Marks)

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

OR

4 a. What is traversing? What are the different types of traversing? **(04 Marks)**

b. What is closing error? Explain the Bowditch rule of graphical adjustment with sketch. **(08 Marks)**

c. 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) Borometric 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)**