

Total number of printed pages-4

53 (CE 301) SURV-I

2021

SURVEYING-I

Paper : CE 301

Full Marks : 100

Time : Three hours




The figures in the margin indicate full marks for the questions.

1. (a) Derive the expression for height and distance of an object, when object and instrument stations are in the same vertical plane and instrument axes are at different levels. 10
- (b) Explain the following : 5×2=10
 - (i) Correction for curvature and refraction
 - (ii) Advantages and disadvantages of plane table surveying.

Contd.

2. (a) What is contour? What are the characteristics of contour? 10

(b) The following bearings were observed with a compass.



Line	F.B.	B.B.
AB	74°0'	255°0'
BC	91°0'	270°0'
CD	164°0'	342°0'
DE	177°0'	0°0'
EA	189°0'	9°0'

Where do you suspect the local attraction? Find the corrected bearings. 10

3. (a) Explain the following methods of plane table surveying : 5×2=10

(i) Radiation

(ii) Intersection.

(b) With the help of an observation table, explain Reiteration method to determine horizontal angles. 10

4. (a) In running fly levels from a benchmark of R.L. 384.705, the following readings were obtained.

Backsight	3.215	1.03	1.295	1.855
Foresight	1.225	3.290	2.085	

From the last position of the instrument, six pegs at 25m interval are to be set out on a uniformly following gradient of 1 in 100, the first peg is to have R.L. of 384.5. Work out the staff readings required for setting the tops of the pegs on the given gradient. 10

(b) Explain the factor on which the choice of proper, contour interval depends. 5

(c) Explain the various methods of orienting a plane table. 5

5. (a) To determine the elevation of the top of a building, the following observations were made : 5

Instrument Station	Reading on B.M. (m)	Angle of Elevation	Remarks
A	1.456	12°47'	R.L. of
B	1.052	8°12'	B.M. = 250.48m

Stations A and B and the top of the building are in the same vertical plane. Find the elevation of the top of the building, if the distance between A and B is 100m.



(b) What is Indirect Ranging? Write down the procedure of Indirect Ranging. 5

(c) What is two-point problem? How is it solved? 10

