

OCTOBER 2021

Time: Three hours

Maximum Marks: 75

- Note:
1. Answer ALL the questions in PART-A (1 mark each)
 2. Answer any ONE question from each unit in PART-B (3 marks each)
 3. Answer any ONE question from each unit in PART-C (10 marks each)
 4. The question paper contains THREE Pages.

PART-A (1x10=10)

1. What is a theodolite?
2. Mention any four parts in a theodolite.
3. What are the systems of tacheometric survey?
4. What are the errors in tacheometric surveying?
5. What is remote sensing?
6. Define sounding.
7. Define simple curve.
8. Define back tangent.
9. What is GIS?
10. What is linking data files?

PART-B (3x5=15)

UNIT-I

11. Define swinging the telescope.
12. What is meant by closing error?

UNIT-II

13. Differentiate between stadia tacheometry and tangential tacheometry.
14. The multiply constant of tacheometric is 100. Instrument is fitted with anallactic lens. Staff intercept is 0.900m. Find the horizontal distance.

UNIT-III

15. Distance between instrument and flag post is 100m. Angle of elevation is 12° . Angle of depression is 6° . Find the height of the flag post.
16. Name the instruments needed for sounding.

UNIT-IV

17. Differentiate between compound curve and reverse curve.
18. What are the methods used for setting out curve by chain and tape?

UNIT-V

19. What is total station? Mention its uses.
20. Write any four applications of total station.

PART-C (10x5=50)

UNIT-I

21. (i) What is repetition method and explain the field procedure for the measuring the horizontal angle.
 (ii) The latitudes and departures of the lines of a closed traverse are given below. Calculate the independent coordinates and calculate the area of the traverse.

Line	Northing	Southing	Easting	Westing
AB	-	157.20	154.80	-
BC	210.50	-	52.50	-
CD	75.40	-	-	98.30
DA	-	228.70	-	109.00

22. The following lengths and bearings were observed in running a closed traverse ABCD. The length and bearing of line DA have been omitted. Calculate the length and bearing of DA.

Line	Length(m)	Bearing
AB	485	324° 48'
BC	800	26° 24'
CD	1200	162° 06'
DA	?	?

UNIT-II

23. (i) What are the advantages of tacheometric survey?
 (ii) Determine the multiplying constant of a tacheometer. The following observations were taken on a staff held vertically at distances, measured from the instrument.

Observation	Horizontal distance	Vertical angle	Staff intercept
1	50m	+3° 48'	0.500m
2	100m	+1° 06'	1.000m
3	150m	+0° 36'	1.500m

The focal length of object glass is 20cm and the distance from the object glass to trunnion axis is 10cm. The staff is held vertically at all these points. Find multiplying constant.

24. The following readings were taken by a tacheometer with the staff held vertical. The tacheometer is fitted with an anallatic lens and the multiplying constant is 100. Find out the horizontal distance from A to B and the R.L. of B.

Station	Staff station	Vertical angle	Stadia hair readings (m)	Remarks
A	B.M	-6° 0'	1.100, 1.153, 2.060	R.L. of B.M. = 976.000m
	B	+8° 0'	0.982, 1.105, 1.188	

