

VI-SEM/CIVIL/2022(S)
TH-1 Land Survey-II

Full Marks: 80

Time: 3 Hours

Answer any FIVE Questions including Q No.1 & 2
Figure in the right hand margin indicates marks

1. Answer All the questions. 2 X 10

- a) Define the term 'Isogonic lines' and 'Agonic lines'.
- b) Define the term 'Photogrammetry'.
- c) Define the Multiplying constant and Additive constant of a tacheometer.
- d) Express the relation between the Radius and Degree of Curve.
- e) Define GIS.
- f) Express the horizontal distance when Line of Sight is inclined but staff is held vertically.
- g) What are the common elements of map which are used for reading of maps and interpretation?
- h) Define the term "Bar Scale" in map.
- i) Define Versed sine of a curve. Express it mathematically.
- j) Define the term 'Longitude and Latitude'.

2. Answer any SIX questions. 5 X 6

- a) Describe briefly the different elements of a Simple Circular Curve with neat sketch.
- b) Differentiate between Vertical aerial Photograph and Oblique Aerial Photograph.
- c) Determine the values of Stadia constants from the following observations.

Instrument Station	Staff Reading on	Distance (m)	Stadia Reading		
			Lower	Centre	Upper
O	A	200	1.255	1.785	2.780
	B	250	1.625	1.830	3.250
	C	300	0.780	2.980	3.855

- d) Explain the following terms in connection with the Map Nomenclature.
(i) UTM's (ii) Field Notes
- e) Explain briefly about 'Thematic Map'.
- f) Discussed the advantages & disadvantages of Photogrammetric Surveying.
- g) What is a Total Station? Why is it preferred in surveying these days?

3. Two tangents intersect at a chainage of 1530.0 m, the deflection angle is 60° . Calculate the following quantities for setting out of a curve of 500m radius. 10
- Length of curve
 - Tangent Length
 - Length of Long Chord
 - Mid-ordinate &
 - Apex distance
4. Define the term “DGPS”. What are the application/uses of DGPS in day-to-day life? 10
5. How an industrialist can makes feasibility study from maps before set up an industry at local? Give your views. 10
6. Write Short notes on : 10
- Ortho Image Generation
 - Magnetic Declination
 - Public Land Survey System
 - Open Series Map
7. The following observations were taken with a tacheometer fitted with an anallatic lens, the staff being held vertically, the constant of tacheometer is 100. 10

Inst. Station	Height of Instrument	Staff Station	Vertical angle	Staff Reading			Remark
				Lower	Centre	Upper	
P	1.320	BM	$-5^\circ 15'$	1.320	1.845	2.725	R.L of Bench Mark(B.M) =260.850m
P	1.320	A	$+7^\circ 30'$	0.860	1.625	2.780	
B	1.460	A	$-7^\circ 25'$	1.725	2.420	2.965	

Calculate the R.L of point ‘B’ and the horizontal distance between B.M & point B.