134 Register No.: [ ]

April 2019

Time – Three hours
(Maximum Marks: 75)

[N.B: (1) Q.No. 8 in PART – A and Q.No. 16 in PART – B are compulsory. Answer any FOUR questions from the remaining in each PART – A and PART – B

(2) Answer division (a) or division (b) of each question in PART – C.

(3) Each question carries 2 marks in PART – A, 3 marks in Part – B and 10 marks in PART – C.]

PART – A

1. Define the term transiting.
2. Define latitude and departure.
3. What is the purpose of providing anallatic lens in a tacheometer?
4. Define remote sensing.
5. What are the different types of curves?
6. How a curve is designated?
7. What is a total station?
8. What are the two systems of tacheometry?

PART – B

9. What are the fundamental lines of a theodolite?
10. What are the field checks for a closed traverse?
11. Describe the fundamental formula for tangential tacheometry.
12. What is meant by single plane method?
13. What are the uses of hydrographic surveying?
14. Name any five elements of a simple circular curve.
15. Calculate the degree of the curve if the radius is 300m.
16. Write short notes on LIS.

[Turn over.....

PART – C

17. (a) The following are the latitudes and departures of the sides of a closed traverse ABCD. Calculate the independent co-ordinates and find the area of the traverse.

Line	Latitude	Departure
AB	+107.40	+62.00
BC	-122.60	+102.90
CD	-77.90	-45.00
DA	+93.10	-119.90

(Or)

(b) The following are the lengths and bearings of the lines of a closed traverse ABCD. The length and bearing of DA have been omitted. Calculate the length and bearing of the line DA.

Line	Length (m)	Bearing
AB	75.50	30° 24′
BC	180.50	110° 36′
CD	60.25	210° 30′
DA	?	?

18. (a) A tacheometer fitted with an anallatic lens was setup at a station and the following readings were taken on a vertically held staff.

Inst. Station	Staff station	Vertical angle	Stadia hair readings
A	BM	-5° 20′	1.150, 1.800, 2.450
A	B	+8° 12′	0.750, 1.500, 2.250

Find out the horizontal distance AB and the reduced level of B. The RL of BM is 500 m.

(Or)

(b) Determine the value of tachometer constant from the following observations.

Inst. Station	Staff station	Distance (m)	Stadia readings	
			Bottom	Top
O	A	150	1.255	2.750
	B	200	1.000	3.000
	C	250	0.750	3.255

19. (a) Determine the R.L of top of chimney from the following observations.

Inst. Station	Reading on BM	R.L. of B.M	Vertical angle
A	0.648	150.650	+22° 0′
B	0.984	150.650	+14° 35′

Distance between A & B is 21m. A, B and top of chimney are in same vertical plane.

(Or)

(b) (i) State the applications of remote sensing.
(ii) Write short notes on photogrammetry surveying.

20. (a) Two tangents intersect at chainage of 1250m. the angle of intersection is 150°. Calculate all data necessary for setting out a curve of radius 250m by the deflection angle method. The peg interval may be taken as 20m. Prepare setting out table, when the least count of theodolite is 20".

(Or)

(b) Two tangents AB and BC intersect at a point B at a chainage of 150.50m. Calculate all the necessary data for setting out a circular curve of radius 100m and deflection angle 30° by the method of offsets from the long chord.

21. (a) (i) State any five advantages of total station.
(ii) Explain the procedure of setting up total station on the field.

(Or)

(b) Explain the field applications of GIS .
