

22301

21222

3 Hours / 70 Marks

Seat No.

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15 minutes extra for each hour

- Instructions* – (1) All Questions are *Compulsory*.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data, if necessary.
- (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
- (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any FIVE of the following. 10**
- a) Define degree of curve.
- b) State the Fundamental axis of Theodolite.
- c) Name two software for GIS.
- d) State two disadvantages of plane table survey.
- e) State the function of Analytic lens.
- f) List two use of EDM.
- g) Define Axis of the telescope and axis of the bubble tube.
- 2. Attempt any THREE of the following. 12**
- a) Describe any one method of orientation of plane table surveying.
- b) Describe the procedure for measurement of Deflection angle.
- c) State the essential characteristic of tacheometer.
- d) Give the application of Remote sensing in the Natural hazards.

P.T.O.

3. Attempt any THREE of the following. 12

- a) Differentiate between Passive and Active remote sensing system.
- b) Describe the method of curve by using offset from long chord.
- c) Explain the procedure of measurement of vertical angle using one second micro optic theodolite
- d) Mention the component of EDM and give their function.

4. Attempt any THREE of the following. 12

- a) Explain traversing method of plane table surveying
- b) Following are the length and Bearing of a closed Traverse PQRSP

Line	Length(m)	Bearing
PQ	210	35°
QR	300	155°
RS	160	220°.00'
SP	?	?

Calculate the length and Bearing of line SP.

- c) Following observation were taken to determine the constant of tacheometer.

Station	Staff Station	Horizontal distance (m)	Vertical angle	Hair reading	
				Lower	Upper
P	Q	48.340	6°.30'	0.985	1.420
P	R	18.035	2°.30'	1.240	1.420

Determine the Tacheometer constant

- d) Calculate the ordinate from long chord to set a circular curve at 12 m interval given that the length of long chord is 60 m and radius of the curve is 170 m.
- e) Find the length and bearing of line AB If two co-ordinate A and B as given below

Point	Co-ordinate	
A	870.30	777.00
B	1150.20	575.30

5. Attempt any TWO of the following.

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- a) Calculate the corrected consecutive co-ordinate for the following observation of traverse

Line	Length	Consecutive co-ordinate	
		Latitude	Departure
PQ	705	+655.19	-260.29
QR	952.5	+122.07	+943.99
RS	645	-628.47	+145.54
SP	844.30	-151.48	-830.80

- b) A tacheometer was set up at a station A and following reading were taken on a vertically held staff.

Station	Staff station	Vertical angle	Hair Reading			Remark
A	BM	+7°30'	0.800	1.275	1.350	
B	C	-2°30'	1.125	1.335	1.440	

The constant of Instrument were 100 and 0.1. Determine distance AB and RL of C. If RL of BM is 400.00 m.

- c) The following angle were measured in running a closed traverse PQRSTP.

$$\angle P = 80^{\circ}50'30'' \quad ; \quad Q = 112^{\circ}30'20''$$

$$\angle R = 94^{\circ}00'00'' \quad ; \quad S = 128^{\circ}20'30'';$$

$$\angle T = 111^{\circ}30'20''$$

If the bearing of line PQ is $220^{\circ}15'30''$ calculate bearing of the Remaining line.

6. Attempt any TWO of the following.

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- a) Explain the application of remote sensing in Civil Engg.
 b) Describe layout of a small building by using Total Station.
 c) Describe stepwise procedure of contouring with Total station.