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[5152]-504**S.E. (Civil) (I Sem.) EXAMINATION, 2017****SURVEYING****(2015 PATTERN)****Time : Two Hours****Maximum Marks : 50**

- N.B. :-**
- (i) Answer Q. No. 1 or Q. No. 2, Q. No. 3 or Q. No. 4, Q. No. 5 or Q. No. 6, Q. No. 7 or Q. No. 8.
 - (ii) Neat sketches must be drawn wherever necessary.
 - (iii) Figures to the right indicate full marks.
 - (iv) Assume suitable data, if necessary.
 - (v) Use of electronic pocket calculator is allowed in the examination.
 - (vi) Use of cell phone is prohibited in the examination hall.

1. (a) Enlist and explain the function of each of the instruments required for plane table surveying. [6]
- (b) Following readings were observed during a reciprocal leveling with one level : [6]

Instrument at	Staff Readings on		Remark
	A	B	

A	0.656	2.097	Distance between
B	0.867	2.298	A & B is 950 m

- (i) Find the true R.L. of B, if R.L. of A = 378.655 m.

P.T.O.

(ii) Find the combined correction due to curvature and refraction.

(iii) Find the collimation error.

Or

2. (a) Correct the bearing of a closed traverse PQRSP for a local attraction if any. [6]

Line	PQ	QR	RS	SP
F.B.	S45°30'E	S60°00'E	S5°30'E	N83°30'W
B.B.	N45°30'W	N60°40'W	N3°20'W	S85°00'E

- (b) Explain the need and procedure of the terms profile levelling and cross-sectioning with sketches in a road project. [6]

3. (a) Define the following terms :
Transiting, Telescope normal, Latitude, Face right. [4]
- (b) A tacheometer was set up at a station A and the following reading were obtained on a vertically held staff. The constants of the instrument were 100 and 0.1. [8]

Station	Staff station	Vertical angle	Hair reading (in mtrs)	Remarks
P	B.M.	-4°22'	1.050, 1.103, 1.156	R.L. of B.M.
P	Q	+10°0'	0.952, 1.055, 1.158	is = 1958.300 mtrs.

Find the horizontal distance from P to Q and the reduced level of station Q.

Or

4. (a) Determine the missing data for the following table of a closed traverse ABCDA. [8]

Line	AB	BC	CD	DA
Length (m)	230.5	250.2	210.8	—
Bearing	N36°45'E	S82°48'E	S10°15'E	—

- (b) Explain the laboratory method to determine the tacheometric constant. [4]
5. (a) Two roads AB & BC meets at an angle of intersection $127^\circ 30'$ at a chainage of 1280 m. Calculate the necessary data for setting out a curve with radius of 150 m by offset from long chord method. [7]
- (b) Enlist various linear methods of setting out curves and explain any *one* with sketch. [6]

Or

6. (a) What is meant by “transition curve” ? What are the different forms of a transition curve ? Give reasons to introduce the transition curve. [6]
- (b) Two tangents AB & BC meets at B with deflection angle 40° at a chainage of 1280 m. Calculate the necessary data for setting out a curve with radius of 150 m by One theodolite (with 20” L.C.) method take peg interval of 20 m. [7]

7. (a) Write a short note on segments of Space Based Positioning System. [6]
- (b) Write a note on setting out a building. [7]

Or

8. (a) Enlist the limitations of the prevalent survey techniques and so give advantages of Space Based Positioning System. [7]
- (b) Enlist and explain various stages in road survey project. [6]