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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
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B	0.867	2.298	A & B is 950 m
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(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]