Total No. of Questions—**8**] [Total No. of Printed Pages—**4**

Seat No.	

[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° 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]