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

Seat No.	

[5459]-106

S.E. (Civil) (I Sem.) EXAMINATION, 2018

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 different errors in Compass Surveying. [6]

(B) The following records refer to an operation involving reciprocal leveling : [6]

Instrument At	**Staff reading on**		**Remarks**
	A	**B**	
A	1.425	2.724	Distance AB = 1150.00 m.
B	1.429	2.504	R.L. of Point A is 200 m

Find the true difference in elevation between A and B. If instrument had a collimation error of 0.003/150 m, find the error due to refraction. [6]

P.T.O.

Or

2. (A) The whole circle bearing of a side AB of a equilateral anti-clockwise triangle is 38° 45', then determine the Fore and Back bearings of all the sides of the triangle and tabulate your answer. [6]

(B) Explain the following with neat sketches : [6]

(1) Longitudinal Levelling

(2) Axis of Level Tube

(3) Contour Interval

3. (A) Explain the following technical terms : [6]

(1) Face Left

(2) Swinging Right

(3) Departure

(B) The following observations were made on verticially held staff with a Tachometer fitted with an analytic lens. Find the level difference between P and Q. [6]

Instrument Station	**Staff station**	**Vertical angle**	**Hair readings (m)**	**Remarks**
O	P	– 5°00'	0.850, 1.30, 1.50	R.L. of point P is 200 m
	Q	+ 10°00'	0.70, 0.95, 1.15	

Or

4. (A) Explain the following technical terms : [6]

(1) Plunging of Telescope

(2) Optical Plumet

(3) Multiplying constant

(B) What is closing error ? The following are the length and bearings of the sides of a traverse ABCD. Compute the closing error and direction of closing error. [6]

Line	Length (m)	Bearing
AB	156.5	78° 40'
BC	178.2	152° 32'
CD	234.8	251° 18'
DA	202.6	356° 15'

5. (A) Define Curve. Explain various elements of curves. [7]

(B) Two straights AB and BC intersect at a chainage of 1326.78 m. The angle of Intersection is 150°. It is required to set out a simple circular curye of 400 m radius to connect the straights. Calculate all data necessary to set out the curve by the method of offsets from the chord produced with an interval of 20 M. [6]

Or

6. (A) Classify different types of curves. Explain the method of setting out curve by Rankin's method (Two Theodolite method). [7]

(B) Two straights AB and BC intersect at a chainage of 1804.25 m. The angle of deflection is 40°. It is required to set out a simple circular curve of 300 m radius to connect the straights. Calculate all data necessary to set out the curve by the Rankin's method with a peg interval of 20 M. [6]

7. (A) Explain the significance of horizontal and vertical control in building construction. [7]

(B) Explain shortly the GALILEO as positioning system with any *four* points. [6]

Or

8. (A) Describe the fieldwork in tunnel surveying with at least four points and a sketch. [7]

(B) Explain at least *four* salient features of GLONASS. [6]