Total No. of Questions—**8**] [Total No. of Printed Pages—**3**

Seat No.	

[5252]-104

S.E. Civil (First Semester) EXAMINATION, 2017

SURVEYING

(2012 PATTERN)

Time : Two Hours **Maximum Marks : 50**

1. (*a*) Enlist the methods of plane table surveying. Give *two* limitations of each method. [6]

(*b*) Following readings were observed during a reciprocal leveling with one level. [6]

Instrument at	Staff Readings on		Remark
	P	Q	
P	0.656	2.097	Distance between
Q	0.867	2.298	A and B is 950 m

Find :

(*a*) the true R.L. of B, if R.L. of A = 378.650 m.

(*b*) the combined correction due to curvature and refraction.

(*c*) the error in the collimation adjustment of the instrument.

Or

2. (*a*) Find the included angles of the closed traverse PQRSTP and correct them for the corrections, if any. [7]

Line	**PQ**	**QR**	**RS**	**ST**	**TP**
F.B.	242°00'	89°45'	70°00'	292°45'	20°00'
B.B.	63°00'	270°15'	250°00'	112°45'	198°30'

(*b*) The eye of an observer is 7 m above the sea level. He was able to see the top of a light-house 42 m high just at the

P.T.O.

level of the horizon. Determine the distance of the observer from the light house. [5]

3. (*a*) Explain the following terms : [6]

Vertical axis, Horizontal axis, Optical Plumet, Telescope normal.

(*b*) Two tangents intersect at chainage of 1000 m with deflection angle of 55°. Calculate the chainage of T1 & T2, Length of long chord (L), Degree of curve (D), Apex distance, Mid ordinate distance, for setting out a curve with radius of 400 m. [6]

Or

4. (*a*) ABCDA is a closed traverse. Determine the missing data in the following table : [6]

Line	AB	BC	CD	DA
Length (m)	230.5	250.2	----	427
Bearing	N36°45'E	S82°48'E	----	N82°45'W

(*b*) What are transition curves ? Give its necessity. [6]

5. (*a*) Enlist various permanent adjustments of a theodolite. Explain procedure to correct any *one*. [5]

(*b*) A tacheometer with constants K = 100, C = 0.3 was used to observe the following readings : [8]

Instrument at	Staff at	Vertical angle	Staff Readings
	P	+ 5°15'	1.355, 2.580, 3.935
A	Q	– 4°15'	0.985, 1.660, 2.335

Determine the RL of Q. Take R.L. of P = 100.000 m. Also determine distance PQ if horizontal angle PAQ = 60° 30'.

Or

6. (*a*) Explain the procedure to find techeometric constants on field. [4]

(*b*) Derive the distance and elevation formulae for an inclined line of sight with angle of elevation and staff is vertical. [5]

(c)

Instrument at	Staff at	Distance (m)	Vertical Angle	Cross hair reading
P	A	80	2° 30'	1.325, 2.122
P	B	140	1°36'	0.985, 2.382

Determine the techeometric constants from the given data. [4]

7. (*a*) What is total station ? What are the types of total station ? [6]

(*b*) Describe the method of laying alignment of drainage line. [7]

Or

8. (*a*) Explain the procedure for survey project on sanitary scheme. [6]

(*b*) Write a short note on the features of ETS. [7]