[4957]-1004

Seat
No.

S.E. (Civil) (I Semester) EXAMINATION, 2016
SURVEYING
(2012 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 various methods of Plane Table surveying ? Explain any *one* with sketch. [6]

(B) The following readings were observed during a reciprocal leveling with one level. [6]

Instrument at	Staff Readings on		Remark
	A	B	
A	1.115	1.765	Distance betwee
B	1.750	2.315	A & B is 1200 m

Find :

(a) the true R.L. of B, if R.L. of A = 625.6075 m.

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

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

P.T.O.

Or

2. (A) Find the included angles of the closed traverse PQRSTP and correct them : [6]

Line	PQ	QR	RS	ST	TP
F.B.	73º 40'	113º 50'	164º20'	223º 40'	303º 50'
B.B.	252º30'	295º 20'	344º 20'	43º 00'	123º 45'

(B) Derive the expression of correction due to curvature (Cc) and correction due to refraction (Cr). [6]

3. (A) Define following terms : [6]

Plunging, Swinging, Telescope reverse, Latitude.

(B) Two tangents intersect at chainage of 1190 m with deflection angle of 36º. Calculate the necessary data for setting out a curve with radius of 300 m by deflection angle method. Take peg interval as 30 m. [6]

Or

4. (A) ABCDA is a closed traverse. Determine the missing data. [6]

Line	AB	BC	CD	DA
Length (m)	—	850	408	828
Bearing	S 1º 18' W	Easting	N 2º 24' W	—

(B) What are curves ? Draw a neat sketch of simple curve with its various elements. Work out the expression for Tangent length and length of chord. [1+5=6]

5. (A) Enlist the fundamental axes of transit theodolite. Explain the procedure for making bubble axes (Axis of plate level) perpendicular to vertical axis. [2+4=6]

(B) Find the difference in elevation between P and Q from the given data. The stadia constants are k = 100, C = 0.3. Take RL of A = 500.000 m. [7]

Instrument at	Staff at	Vertical angle	Staff Readings
	P	+ 3º 15'	1.355, 2.580, 3.935
A	Q	− 1º 45'	0.985, 1.660, 2.335

Or

6. (A) Point C is on the line AB, at 50 m from A and 100 m from B. The stadia readings on staff at A are 1.235, 1.483, 1.731 and that on staff at B are 1.345, 1.843, 2.341. Determine the instrument constants. [4]

(B) Explain the field method of determining the tacheometer constant with sketch. [4]

(C) Enlist and explain various errors in the tachometry survey. [5]

7. (A) Write a short note on Electronic Total Station (ETS). [6]

(B) Write a short note on Tunnel survey with respect to necessity, alignment marking, shafts and drawings required. [7]

Or

8. (A) Explain horizontal and vertical controls with sketches in setting out buildings. [6]

(B) What is ETS ? Enlist various advantages of ETS over other surveying instruments. [7]