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Seat No.	
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[5057]-204**S.E. (Civil) (I Sem.) 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 diagrams must be drawn wherever necessary.
- (iii) Figures to the right indicate full marks.
- (iv) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.
- (v) Assume suitable data, if necessary.

1. (a) What are the advantages and disadvantages of plane table surveying ? [6]
- (b) Two points A and B are 1530 m apart across a wide river. The following reciprocal levels are taken with one level :

Level at	Readings on	
	A	B
A	2.165	3.810
B	0.910	2.355

P.T.O.

The error in the collimation adjustment of the level is +0.004 m in 100 m (Inclined upward) calculate the true difference of level between A and B and the refraction correction. [6]

Or

2. (a) Explain the uses of contour maps with sketch. [6]
 (b) The following bearings were taken while conducting a close traverse with a compass in a place where local attraction was suspected :

Line	F.B.	B.B.
AB	80°45'	260°00'
BC	130°30'	311°35'
CD	240°15'	60°15'
DA	290°30'	110°10'

At what station do you suspect local attraction find the corrected bearing for local attraction and for declination of 1°30' W. [6]

3. (a) Write short notes on : [6]
 (i) Deflection angle method
 (ii) Computation of area of a closed traverse by co-ordinates.
 (b) A circular curve has a 200 m radius and 65° deflection angle. What is the degree of curve (30 m) also calculate : [6]
 (i) length of curve

- (ii) tangent length
- (iii) length of long chord
- (iv) apex distance
- (v) mid-ordinate.

Or

4. (a) List the various methods of setting out a simple circular curve. Explain briefly the Rankine method of deflection angles. [6]
- (b) In order to fix a point F exactly midway between A and E a traverse was run as follows :

Line	Length	Bearing
	(in m)	
AB	400	30°
BC	500	0°
CD	600	300°
DE	400	30°

Assuming pt. A as origin calculate independent co-ordinate of pt. F. [6]

5. (a) Enlist the fundamental axes of a transit theodolite and describe how will you make the trunnion axis \perp^{ur} to the vertical axis. [7]

- (b) Determine reduced level of A from given data assume multiplying const. 100 with anallatic lens : [6]

Inst ⁿ .	St ⁿ .	H.I.	Staff. St ⁿ .	Vertical angle	Staff reading	R.L. of B
A		1.45	B	+8°20'	0.990, 1.555, 2.120	100.00

Or

6. (a) State the stepwise permanent adjustment of theodolite. [4]
 (b) Determine the elevation of station P in tachcometer survey the following observations were made with the staff held vertical. The instrument was fitted with an anallatic lens and its multiplying const. was 100 : [9]

Inst ⁿ .	St ⁿ .	H.I.	Staff. St ⁿ .	Vertical angle	Staff readings
O		1.45	B.M.	-6°	1.335, 1.895, 2.460
O		1.45	C.P.	+8°30'	0.780, 1.265, 1.745
P		1.40	C.P.	-6°30'	1.155, 1.615, 2.075

If R.L. of B.M. is 250 m. Calculate R.L. of P.

7. (a) Describe the procedure of setting out of Tunnels. [7]
 (b) Write a short note on Total Station. [6]

Or

8. (a) Explain the procedure for establishing horizontal and vertical control for setting out of buildings. [7]
 (b) Describe briefly the various special functions available in total station. [6]