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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]

Instⁿ. Stⁿ.	H.I.	Staff. Stⁿ.	Vertical angle	Staff readings	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]

Instⁿ. Stⁿ.	H.I.	Staff. Stⁿ.	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]