

Total No. of Questions—8]

[Total No. of Printed Pages—4+1

Seat No.	
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[4657]-504

S.E. (Civil) (First Semester) EXAMINATION, 2014

SURVEYING

(2012 PATTERN)

Time : Two Hours

Maximum Marks : 50

N.B. :— (i) Neat diagrams must be drawn wherever necessary.

(ii) Figures to the right indicate full marks.

(iii) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.

(iv) Assume suitable data if necessary.

1. (a) Explain the following technical terms with sketches : [6]

(i) Oblique offset

(ii) Swivel joint

(iii) True meridian

(iv) Base line.

P.T.O.

- (b) The following notes refer to reciprocal levels. Find R.L. of B. [6]

Instrument at	Staff reading on		Remarks
	A	B	
A	1.755	3.155	Distance AB = 500.00 m
B	1.155	2.915	RL of A = 1000.00 m

Or

2. (a) Explain the following with sketches :

(i) Lifting lever

(ii) U-fork with plumb-bob

(iii) WCB

(iv) Eye ranging. [6]

- (b) While carrying out the permanent adjustment of a dumpy level by two peg method, the following observations were made :

Inst. At	Reading on C	Reading on D	Remark
E midpoint of CD	2.000	3.000	CD = 100 m; CF = 120 m;
F	1.500	2.75	DF = 20 m;

Check whether the instrument needs adjustment or not and whether the line of collimation is inclined upwards or downwards. What should be the correct reading at C if the instrument is to be adjusted at F ? [6]

3. (a) Write short notes on : [6]

(i) Direction angle method

(ii) Error of closure in Theodolite traversing.

(b) A simple circular curve is to be set out by offsets from chord produced. The curve has the following details :

(i) Radius of the curve 600 m

(ii) Deflection angle of the curve 29°

(iii) Chainage of intersection point 2900 m

(iv) Peg interval 30 m.

Tabulate the data necessary to set out the curve. [6]

Or

4. (a) Write short notes on : [6]

(i) Balancing the traverse

(ii) Prolonging a line.

(b) Draw neat sketch and write equations for the following in terms of radius of curve (R) and deflection angle (ϕ) : [6]

(i) Long chord

(ii) Versed sine

(iii) Apex distance.

5. (a) Describe the methods of determination of tacheometric constants. [7]

(b) Explain permanent adjustment of the horizontal axis. [6]

Or

6. (a) The following observations are made on a vertically held staff with a tacheometer fitted with a anallactic lens. The multiplying constant of the instrument was 100. Compute the length of AB and RL of B : [7]

Inst. at	H.I	Bearing	Staff station	Vertical angle	Hair readings (m)	Remarks
BM	1.50	30°	A	-5° 30'	1,000, 1.110, 1.250	R.L.of BM 200.00 m
		120°	B	+10° 00'	0.950, 1.150, 1.260	

(b) State permanent adjustments of Theodolite. Explain any one in detail. [6]

7. (a) Explain step by step procedure of setting out building with total station. [7]
- (b) Describe setting out tunnel centre line on surface. [6]

Or

8. (a) Write the working principle of total station. Explain the features of total station. [7]
- (b) Write a short note on Route Survey. [6]

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