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Seat No.	
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[4757]-1004

S.E. (Civil) (First Semester) EXAMINATION, 2015

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) What are the types of error in plane tabling ? How are they minimized ? [6]

(b) The following reciprocal levels were taken with one level : [6]

Instrument at	Reading on		Remarks
	A	B	
A	1.884	2.896	Distance between A & B = 900 m R.L. of A = 300 m
B	0.537	1.894	

Determine :

(i) The true difference in elevation between A & B.

(ii) The reduced level of B.

(iii) The error in the collimation adjustment of the level.

P.T.O.

Or

2. (a) State the uses and characteristics of contour lines. [4]
- (b) Find the distance to the visible horizon from the top of a light-house 60 m high. [2]
- (c) Determine the Fore bearing and back bearing of all the lines in a regular closed (pentagon) from the following direction : [6]
- (i) Traversing was done in clockwise direction.
- (ii) Local attraction was not suspected at any station.
- (iii) Fore bearing of line CD of the closed traverse ABCDEA was observed to be $35^{\circ} 30'$. Draw rough sketch of the traverse.
3. (a) What is meant by theodolite traversing ? State various methods of theodolite traversing. [6]
- (b) Tabulate the data required for setting out the circular curve by the deflection angle method using the following data : [6]
- (i) Chainage of intersection point = 1580 m
- (ii) Deflection angle = 35°
- (iii) Degree of curve = 5°
- (iv) Peg interval = 30 m.

Or

4. (a) State various obstacles in setting out curves. Explain the procedure of setting out simple curve when point of intersection is inaccessible. [6]
- (b) Two stations A and B are fixed on either side of a wood. The following traverse is run from A to B along the side of the wood : [6]

Line	Latitude	Departure
AC	+290.8 m	+327.5 m
CD	-229.2 m	+623.2 m
DB	-516.6 m	+267.8 m

Determine the length and bearing of AB and DA.

5. (a) Enlist the fundamental axes of a transit theodolite and describe how will you make the trunnion axis perpendicular to the vertical axis. [5]
- (b) A tacheometer with anallatic lense having the value of constant 100 was used and the following observations were made on staff held vertical : [8]

Instrument Station	H.I. in Meter	Vertical Angle	Staff At	Staff Reading in m
P	1.80	2°40'	M	1.25, 1.93, 2.56
		-4°40'	Q	1.45, 1.85, 2.30

R.L. of station M is 50 m. Calculate the R.L. of P & Q, distance PQ and gradient.

Or

6. (a) Explain the test and adjustment for making the line of collimation right angle to the horizontal axis. [5]
- (b) Draw the sketches of different stadio lines. [4]
- (c) Determine reduced level of horizontal line of sight from given data. Assume multiply constant 100 with anallatic lens : [4]

Instrument Station	Staff Station	Vertical Angle	Stadio Reading	Remark
A	B	8°20'	0.990, 1.555, 2.120	R.L. of B 100.00 m

7. (a) Explain distance and angle measurement with total station. [6]
- (b) Explain the method of transfer of centre line in long tunnels. [7]

Or

8. (a) What is total station ? State the classification based on range of total station. [7]
- (b) Define gradient. What is the importance of gradient while laying sewer pipe ? How is it decided ? [6]