

Total No. of Questions—8]

[Total No. of Printed Pages—4

Seat No.	
-------------	--

[5057]-2004

S.E. (Civil) (First Semester) EXAMINATION, 2016

SURVEYING

(2015 PATTERN)

Time : Two Hours

Maximum Marks : 50

N.B. :— (i) Answer Q. 1 or Q. 2, Q. 3 or Q. 4, Q. 5 or Q. 6, Q. 7 or Q. 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) Explain the procedure of orienting the plane table by back sighting with sketch. [6]

(b) Following readings were observed during testing of a dumpy level : [6]

Instrument at	Staff Readings on		Remark
	A	B	
A	1.725	2.245	Distance between A & B is 200 m
B	2.145	3.045	

P.T.O.

- (a) Is the instrument in adjustment ?
- (b) What should be the R.L. of B, if R.L. of A is = 450.000m ?
- (c) What is the collimation error in the second set ?

Or

2. (a) Correct the bearings of a closed traverse PQRSP for a local attraction if any. [6]

Line	PQ	QR	RS	SP
F.B.	134° 30'	120° 00'	174° 30'	276° 30'
B.B.	314° 30'	299° 20'	356° 40'	95° 00'

- (b) Explain with sketch the error occurred due to curvature and error due to refraction. [6]

3. (a) Determine the missing data for the following table of a closed traverse ABCDA. [6]

Line	AB	BC	CD	DA
Length (m)	230.5	250.2
Bearing	N36° 45'E	S82° 48'E	S10° 15'E	N82° 43'W

- (b) Explain with sketch the fixed hair method of tacheometry, when line of sight is inclined downward (depression) and staff is vertical. [6]

Or

4. (a) Define the terms : [5]

Trunion axis, Transiting, Telescope normal, Latitude, Face right.

- (b) A tacheometer was set up at a station P and following readings were obtained on a vertically held staff. The constants of the instrument were 100 and 0. [7]

Station	Staff station	Vertical angle	Hair readings (in mtrs)	Remarks
P	B.M.	$-6^{\circ} 12'$	0.963, 1.515, 2.067	R.L. of B.M.
P	Q	$+7^{\circ} 5'$	0.819, 1.341, 1.863	is = 460.650 mtrs.

Find the horizontal distance from P to Q and the reduced level of station Q.

5. (a) Two roads AB & BC meets at B with deflection angle $52^{\circ} 30'$ at a chainage of 1280m. Calculate the necessary data for setting out a curve with radius of 150m by “radial offset from tangent” method. [7]

- (b) Write a note on necessity and types of transition curves. [6]

Or

6. (a) Classify curves in different types. Draw a sketch for simple circular curve showing all its elements and derive the formula for tangent length and curve length. [6]

- (b) Two tangents AB and BC meets at B with deflection angle $50^{\circ} 30'$ at a change of 1280m. Calculate the necessary data for setting out a curve with radius of 150m by One theodolite method take peg interval of 20m. [7]

7. (a) Write a short note on GLONASS (Global Navigation and Surveying System). [6]

(b) Write a note on setting out a building. [7]

Or

8. (a) Enlist the limitations of the prevalent survey techniques and so give advantages of Space Based Positioning System (SBPS). [7]

(b) Write a short note on survey for drainage line work. [6]