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
B	2.145	3.045	A & B is 200 m

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.	134º 30'	120º 00'	174° 30'	276º 30'
B.B.	314º 30'	299º 20'	356º 40'	95º 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	N36º 45'E	S82º 48'E	S10º 15'E	N82º 43'W

(*b*) Explain with sketch the fixed hair method of tacheometry, when line of sight is inclined downword (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.	–6º 12'	0.963, 1.515, 2.067	R.L. of B.M. is = 460.650 mtrs.
P	Q	+7° 5'	0.819, 1.341, 1.863	

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 52º 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 50º 30' at a chainge 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]