

Total No. of Questions : 10] [Total No. of Printed Pages : 4

Roll No.

CE-403

B. E. (Fourth Semester) EXAMINATION, June, 2009

(Old Scheme)

(Civil Engg. Branch)

SURVEYING

(CE – 403)

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt any *five* questions. Attempt *one* question from each Unit. All questions carry equal marks.

Unit – I

1. (a) Explain the following terms : 5 each
 - (i) Latitude and Departure
 - (ii) Omitted measurement
- (b) The elevation of the top Q of a signal is to be determined. The observation was made from two instrument stations A and B, which are in line with the signal. The stations A and B are 100 m apart. The vertical angles of Q as observed at A and B are $30^{\circ} 40'$ and $17^{\circ} 0'$.

The staff reading on the bench mark of elevation 178.450 m was 2.850 m when the instrument was at A and 3.500 m when the instrument was at B. Determine the elevation of the top and foot of the signal if the height of the signal above its base is 4.50 m. 10

P. T. O.

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Or

2. (a) Explain about the balancing of a closed traverse. Describe any *one* method in brief. 10
- (b) A closed traverse was conducted around a building and the following observations were noted. Work out the length of survey line DE and EA : 10

Survey Line	Length (m)	Bearing
AB	500	98°30'
BC	620	30°20'
CD	468	298°30'
DE	?	230°0'
EA	?	100°0'

Unit – II

3. (a) Define tacheometry. What are the different systems of tacheometric measurements ? 10
- (b) Describe *one* method of determining the tacheometric constt. K and C of a tacheometer. 10

Or

4. (a) Describe the use of analactic lense in tacheometer. What are the advantages and disadvantages of using it ? 10
- (b) A tacheometer is used to obtain the difference of levels between two points A and B. The instrument is set up at another station C and the following observations were made : 10

Staff at	Vertical Angle	Staff Readings
A	– 6°15'	3·500; 2·815; 2·130
B	– 9°0'	1·870; 0·990; 0·110

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If the R. L. of A is 100.000 , determine the R. L. of B. Also determine the horizontal distance of A from C. Take, $K = 50.0$ and $C = 0.50$.

Unit – III

5. (a) Derive the expression for the following five elements of simple circular curve : 3 each
- (i) Length of curve
 - (ii) Tangent length
 - (iii) Length of long chord
 - (iv) External distance
 - (v) Mid-ordinate
- (b) Write the use of vertical curve. 5

Or

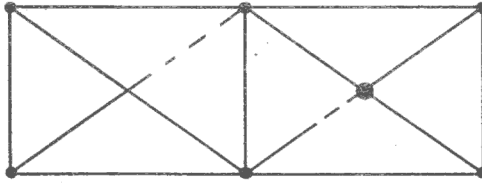
6. (a) The following data refer to a right hand compound curve : 15
- Total deflection $= 80^\circ$
- Radius of First arc $= 200 \text{ m}$
- Radius of Second arc $= 250 \text{ m}$
- Chainage of point of intersection $= 1504.80 \text{ m}$
- Deflection angle of the first arc $= 50^\circ$
- Determine the chainage of the point of curvature, the point of compound curve and the point of tangency.
- (v) Explain the use of transition curve. 5

Unit – IV

7. (a) Define triangulation. Describe about the different triangulation figures. 10

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- (b) Compute the value of C and $\frac{D-C}{D}$ for the Net given below : 10



Or

8. (a) Write the criteria for selection of triangulation station. 6
- (b) Two triangulation stations A and B are 60 km apart and have elevation 250 m and 300 m respectively. Find the minimum height of signal required at B, so that the line of sight may not pass near the ground than 2 m. The intervening ground may be assumed to have a uniform elevation of 200 metres. 14

Unit – V

9. Discuss about soundings. What are the methods of locating soundings ? 20

Or

10. (a) Write a short note on aerial photography. 10
- (b) Explain the following terms : 5 each
- (i) Image processing
 - (ii) Tilt and height of distortion