Total No. of Questions :5] *[Total No. of Printed Pages :2*

Roll No .....

CE - 403

B.E. IV Semester Examination, December 2014

Surveying

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each questions are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

Unit - I

1. a) What is called face left and face right related to theodolite?
   b) What is closing error in traverse? How it is determined?
   c) What are the different methods of plotting traverse survey? Explain any one method in short.
   d) The following observations were made for a closed traverse round an obstacle. Due to obstructions, lengths of line DE and EA could not be measured. Find out the missing lengths.

Line	length (m)	Bearing
AB	500	98°30'
BC	620	30°20'
CD	468	298°30'
DE	?	230°00'
EA	?	150°10'

OR

Coordinates of two points A and B are given below. A third point C has been chosen in such a way that bearings of AC and CB are 29°30' and 45°45', respectively. Calculate the lengths of the lines AC and CB.

Point	Northing	Easting
A	150	200
B	1500	1300

Unit - II

2. a) What is stadia Rod?
   b) What is Anallactic lens? What is its purpose?
   c) Write various characteristics of tacheometer.
   d) Derive Distance and Elevation formulae for horizontal height in Fixed Hair Method.

OR

A tacheometer is fitted with an anallactic lens and the constants are hundred and zero. The reading corresponding to the crosswire on a staff held vertical on a point B was 2.295 m when sighted from A. If the vertical angle was +25° and the horizontal distance AB was 190.00 m. Calculate the stadia wire readings and this show that the two intercept intervals are equal. Using these values calculate the level of B if that of A was 50.00 m and the height of the instrument is 1.35 m.

Unit - III

3. a) Define Transition curve and state its purpose.
   b) State various elements of a simple circular curve.
   c) A circular curve has a 200 m radius and 65° deflection angle. Calculate degree (D) and length of the curve.
   d) Explain the method of setting out simple circular curve by perpendicular offsets from the tangent.

OR

A road 8 m wide is to deflect through an angle of 60° with the centre line radius of 300 m, the chainage of the intersection point being 3605.0 m. A transition curve is to be used at each end of the circular curve of such a length that the rate of gain of radial acceleration is 0.5 m/s^3, when the speed is 50 km/h, find out

i) Length of transition curve
ii) Super elevation
iii) Chainage of all junction points

Unit - IV

4. a) Define Triangular system. What geometric conditions should be fulfilled by figures used in triangular system?
   b) What are the various applications of Triangulation?
   c) Define types of triangulation.
   d) Write characteristics of a good signal. Also state various points kept in mind while selecting stations.

OR

Directions are observed from a satellite station S, 62.12 m from station C. Following were the results

$\angle A = 0°0'0"$, $\angle B = 7°54'32"$, $\angle C = 296°12'02"$.

The approximate lengths of AC and BC were 8240.6 m and 10863.6 m. Calculate the angle ACB.

Unit - V

5. a) Define the following:
      i) Sounding Rod
      ii) Lead line
   b) What is Tilt and Drift in photography?
   c) What are the reasons for overlap?
   d) Explain various methods of locating sounding?

OR

Explain image-processing systems in detail.

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