THIRD SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, DECEMBER 2010

CE 04-305—SURVEYING—II

Time : Three Hours   Maximum : 100 Marks

Answer **all** *questions.*

Part A

1. (a) Explain the procedure of conducting a stadia traverse by comparing with a theodolite traverse.

   (b) Discuss the principles of a self-reducing tacheometer.

   (c) How will you set out a curve by successive bisection of arcs ?

   (d) Write short notes on resection and intersection.

   (e) What are the uses of field astronomy in surveying ?

   (f) What are satellite stations ? When are they selected ?

   (g) How would you determine the length of a vertical curve ?

   (h) What are basic location positions and mention their use in location survey ?

$(8 \times 5 = 40$ marks)

Part B

2. (a) (i) Discuss the subtense bar method of tacheometry and mention its merits.   (7 marks)

     (ii) The vertical angles to vanes fixed at 1 m. and 3 m. above the foot of the staff held vertically at a station P were $-1°$ 45' and $+2°$ 30' respectively. Find the horizontal distance and the reduced R.L. of P if the R.L. of the instrument axis is 110.00.

(8 marks)

Or

   (b) (i) What are different methods of designation of a curve ? Derive the relationship between the radius and the degree of curve.

(10 marks)

     (ii) Define the following terms :

         Mid-ordinate, point of reverse curve, point of curvature and point of tangency.

(5 marks)

3. (a) (i) Differentiate between triangulation and traversing and trilateration.   (8 marks)

     (ii) Discuss various methods for the measurement of the base line.   (7 marks)

Or

(b) The mean observed angles of spherical triangle ABC are as follows :

$\alpha = 55° \ 18' \ 24''.45 \ \text{wt.1}$

$\beta = 62° \ 23' \ 34''.24 \ \text{wt.2}$

$\gamma = 62° \ 18' \ 10''.34 \ \text{wt.3}$

The length of the side BC was also measured as 59035.6 m. If the mean radius of earth is 6370 km., calculate the most probable values of the spherical angles.

(15 marks)

4. (a) Discuss various methods of locating soundings in hydrographic surveying.

Or

(b) Derive expression for the horizontal distance D and the vertical intercept V. When the staff is (i) vertical and (ii) normal.

(15 marks)

5. (a) Discuss method of determining ground co-ordinates from the photo co-ordinates.

Or

(b) Explain the working and salient features of a gyrotheodolite.

(15 marks)

[4 × 15 = 60 marks]