Code: 13A01405

SS

B.Tech III Year I Semester (R13) Regular Examinations December 2015

SURVEYING – II

(Civil Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) What is trigonometric leveling? What are its advantages over direct leveling?

(b) An instrument was set up at a point 200 m away from a transmission tower. The angle of elevation to the top of the tower is $30° 42'$, where as the angle of depression to the bottom was $2° 30'$. Calculate the total height of the transmission tower.

(c) Define tacheometry and list out the uses of tacheometry.

(d) List out the types of errors in tacheometry.

(e) What are the requirements of a good signal which it should fulfill?

(f) List out the reference grids for setting out works.

(g) What are the methods of designation of curve? Give the relationship between degree of a curve and its radius.

(h) Enumerate the field problems in setting out curves.

(i) What is a total station? What are its advantages over traditional surveying instrument?

(j) What do you understand by remote sensing? Give the classification of remote sensing.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 How would you determine the difference in elevation of the instrument station and top of a chimney, if the base of the chimney is inaccessible?

OR

3 The observations were made on the top A of a flag AB on a hill from two instrument stations P and Q, 100 m apart, the stations P and Q being in the line with A. The angles of elevation of A at P and Q were $30° 05'$ and $17° 52'$ respectively. The staff reading upon the B.M (R.L = 311.29 m) were 2.690 and 3.815 respectively, when the instrument was at P and Q, the telescope being horizontal. Determine the elevation o the root B of the flag, if AB is 3.5 m.

UNIT – II

4 The following are the distances of the staff position from the instrument and the corresponding staff intercepts. Calculate the tacheometric constants.

D (m)	20	50	100	120
S (m)	0.195	0.495	0.997	1.197

OR

5 A tacheometer was set up at a station A and the readings on a vertically held staff at B were 2.255, 2.605 and 2.955, the line of sight being at an inclination of $+ 8° 24'$. Another observation on the vertically held staff at B.M. gave the readings 1.640, 1.920 and 2.200, the inclination of the line of sight being $+ 1° 06'$. Calculate the horizontal distance between A and B and the elevation of B if the R.L. of B.M. is 418.685 m. The constants of the instruments were 100 and 0.3.

Contd. in page 2

UNIT – III

6 At a satellite station S, 5.5 m from the main triangulation A, the following directions were observed: $\angle A = 00° 00' 00'', \angle B = 130° 20' 30'', \angle C = 233° 25' 05'', \angle D = 300° 10' 00''$. The lengths AB, AC and AD were computed to be 3200.7 m, 4120.5 m and 2996.6 m respectively. Determine the directions AB, AC and AD.

OR

7 How would you set out a culvert in the field? Explain the method with neat sketches.

UNIT – IV

8 Two tangents at chainage 2380 m, the deflection angle being $50° 30'$. Compute the necessary data for setting out a $5.7°$ curve to connect the two tangents, by using Rankine's method of deflection angles. Take the length of the normal chord as 30 m.

OR

9 Two straights AB and BC intersected by a line MN. The angles AMN and MNC are $145°$ and 140° respectively. The radius of the first curve is 400 m and that of the second curve is 600 m. Find the chainages of the tangent points and the point of compound curvature, chainage of the point of intersection is 5555 m.

UNIT – V

10 Discuss the following:

(a) Principle of EDM.

(b) Types of EDM instruments.

OR

11 Write short note on remote sensing platform and also discuss about the geostationary satellites.

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