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B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2012

CIVIL ENGINEERING BRANCH

6

FOURTH SEMESTER (Regulation 2008)

CE 9254 SERVEYING II

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Compare stadia tacheometry and tangential tachometry.
2. Two distances of 50 and 80m were accurately measured out, and the intercepts on the staff between the outer stadia webs were 0.496m at the former distance and 0.796m at the later. Calculate the stadia constants.
3. What are the objectives of Geodetic Triangulation?
4. List merits of reciprocal observation for determining the elevation difference.
5. Describe weight of an observation.
6. What is station adjustment?
7. Differentiate Celestial Horizon and Sensible Horizon.
8. List various astronomical corrections applied to the measured altitudes.
9. Differentiate Triangulation from Trilateration.
10. What are the applications of Total Station?

Part – B (5 x 16 = 80 marks)

11. i. Derive expressions for determining the horizontal distance and vertical distance by tangential tacheometry. (10)
ii. A tacheometer was set up at a station A and the readings on a vertically held staff at B were 2.255m, 2.605m and 2.955, the line of sight being an inclination of $+8^{\circ} 24'$. Another observation on a vertically held staff at B.M. gave the readings 1.640m, 1.920m and 2.200m the inclination of the line of sight being $+1^{\circ} 06'$. Calculate the horizontal distance between A and B, and the elevation of B if the R.L. of B.M. is 385.355m. The constants of the instrument were 100 and 0.3. (6)
12. a) i. What is meant by satellite station and reduction to center? Derive expression for reducing the angles measured at the satellite station to center. (12)
ii. What are the factors to be considered for selection of Triangulation station? (4)

OR

b) i. A theodolite was setup at a distance of 200m from the tower. The angle of elevation to the parapet was $8^{\circ} 18'$ while the angle of depression to foot of the wall was $2^{\circ} 24'$. The staff reading on the B.M. having R.L. 48.362m with the telescope horizontal was 1.286m. Find the height of the tower and the R.L. of the top of the parapet. (6)
ii. What is meant by base net? Explain how do you extend the base line. (4)
iii. Discuss about axis signal correction. (6)

13. a) i. Find the most probable value of the angles A, B, and C of a triangle ABC from the following observation. (12)
 $A = 65^\circ 15' 30''$, weight = 3, $B = 51^\circ 11' 25''$, weight = 2, $C = 63^\circ 32' 34''$, weight = 4
 ii. Discuss different types of errors in surveying adjustment. (4)

OR

- b) The following data pertain to a circuit of precise level connecting four bench marks A, B, C and D. Calculate the elevations of the points B, C and D if that of A is 100.00m. (16)

Circuit	Level line	Weight	Observed difference elevation
I	A to B	2	+2.633m
	B to C	2	-1.823m
	C to A	1	-0.710m
II	A to D	2	-1.424m
	D to C	2	+2.324m
	C to A	1	-0.710m

14. a) i. What are the systems of co ordinate employed in locating the position of a heavenly body? Explain in detail. (8)
 ii. Find the hour angle and declination of a star from the following data. (8)
 Latitude of place = $48^\circ 30' 40''$ N Azimuth of star = $50^\circ 25' 30''$
 Altitude of star = $28^\circ 24' 50''$.

OR

- b) i. Write salient property of a spherical triangle. (4)
 ii. What are the principle methods of determination of Azimuth? Explain any one method in detail. (12)

15. a) i. Discuss various methods of locating sounding in hydrographic surveying. (12)
 ii. Describe about Cadastral Survey. (4)

OR

- b) i. Discuss three segment of GPS. (10)
 ii. Describe the working principle of Electromagnetic distance measurement. (6)