Reg. No. : | | | | | | | | | | | |

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B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2008.

Fourth Semester

Civil Engineering

CE 1254 — SURVEYING — II

(Regulation 2004)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. List merits and demerits of movable hair method in tacheometric survey.

2. Compare tangential and stadia methods.

3. Name two groups of people involved in the measuring the base line.

4. What is a satellite station?

5. List three types of error occur in measurement.

6. What are the conditions to be satisfied when correcting the measured angles?

7. Describe nautical almanac.

8. What is the relation between the Right ascension and Hour Angle?

9. What are lunar and solar tides?

10. List two characters of contour lines.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Derive the parallax equation for the ground coordinates of a point. (10)

(ii) A pair of photographs was taken with an aerial camera from an altitude of 500m above msl. The mean principle base measured is equal to 90 mm? The difference in parallax between two points is 1.48 mm. Find the difference in height between two points if the elevation of the lower point is 500 m above the datum. What will be the difference in elevation if the parallax difference is 15.5 mm? (6)

Or

(b) (i) Explain three point problem and strength of fix in hydrographic surveying.

(ii) Explain cadastral surveying and its legal values.

12. (a) Discuss about the principles of subtense method for vertical base observations.

Or

(b) A theodolite has a tacheometric multiplying constant 100 and an additive constant of zero. The center reading on a vertical staff held at point B was 2.292 m when sighted from A. If the vertical angle was +25° and the horizontal distance AB 190.326m calculate the staff intercept at B. Using these values, calculate the level of B if A is 37.950m above msl and the height of the instrument 1.35m.

13. (a) The angles of the triangle ABC were recorded as A = 77° 14' 20" weight 4; B = 49° 40' 35" weight 3; C = 53° 04'52" weight 2; Give the corrected values of the angles.

Or

(b) (i) Explain the general principles of least squares. (8)

(ii) What are the laws of random errors? (8)

14. (a) Calculate the sun's azimuth and hour angle at sunset at a place in latitude 42° 30' N, when is declinations is

(i) 22° 12' Nand

(ii) 22° 12' S.

Or

(b) Enumerate and explain the relationships between the coordinates of celestial sphere.

15. (a) From The Satellite station S, 5.8 m from the main triangulation station A, the following directions were observed:

A	00°	0'	0"
B	132°	18'	30"
C	232°	24'	6"
D	296°	6'	11"

The lengths AB, AC and AD were 3265.5m, 4022.2m and 3086.4m respectively. Determine the directions of AB, AC and AD.

Or

(b) Write a detailed notes on Projection, map generalization, map symbology and map design, while generating a map.