[illegible]

[illegible] EXAMINATION, MAY/JUNE 2008.

Fourth Semester

Civil Engineering

CE 239 — SURVEYING — II

Time : Three hours Maximum : 100 marks.

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Explain the accuracy of subtense method in distance measurement.

2. Explain the advantages of reciprocal observation in trigonometric levelling.

3. What do you mean by geographic and plane co- ordinate system.

4. Explain the basic functions of Total station.

5. In survey observation what do you mean by accuracy and precision?

6. What is the meaning of True value and Probable value?

7. Explain the celestial sphere in astronomy.

8. What is nautical almanac?

9. Explain the need of cartographic knowledge in mapping.

10. Define "Cadastral surveying".

PART B — (5 × 16 = 80 marks)

11. (i) Explain refraction and curvature corrections.

(ii) Calculate the sun's azimuth and hour angle at sunset at a place in latitude 42°30' N, when its declination is (1) 22°12' N and (2) 22°12' S.

12. (a) (i) Explain the principle and applications of tacheometric distance measurement.

(ii) Explain the various types of EDM.

Or

(b) (i) What do you mean by soundings?

(ii) Describe briefly the three-point problem and strength of fix in hydrographic surveying.

13. (a) (i) Explain briefly photogrammetric procedure for mapping.

(ii) Explain the terms (1) Parallax measurement (2) Stereo pair (3) Stereoscope (4) Photo mosaic.

Or

(b) Find the difference in level between two points A and B and the refraction correction from the following data :

Horizontal distance between A and B = 6882.384 m

Angle of elevation of B at A = 1°50'20"

Angle of depression of A at B = 1°51'10"

Height of signal at A = 4.145 m

Height of signal at B = 3.597 m

Height of instrument at A = 1.463 m

Height of instrument at B = 1.554 m

14. (a) (i) Explain concept of assigning weight to an observation.

(ii) Adjust the following angles of the triangle.

A = 52°35'32"	B = 70°46'22"	C = 56°38'13"
52°35'30"	70°46'24"	56°38'10"
52°35'31"	70°46'23"	56°38'12"
52°35'28"	70°46'25"	56°38'11"
52°35'26"	70°46'26"	
52°35'27"		

Or

(b) [illegible] level differences were obtained

A to B : +4.380 weight 2; P to A : −16.760 weight 1

C to B : −7.620 weight 1; B to P : +12.520 weight 2

P to C : −4.820 weight 2;

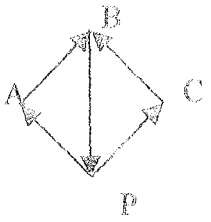

Fig. 1

The arrows show the direction in which each line of levels was run. Determine the most probable values of the reduced levels. The reduced level of P is 212.52 m above msl.

15. (a) What is meant by "a satellite station"? Explain the reason for using during a trignometrical survey. Directions were observed from a satellite station, 68 m from station C with the following results;

A 0° 0' 0"

B 71°54'32".25

C 296°12'00"

The approximate length of AC and BC are respectively 18024 m and 23761 m. Compute the angle subtended at station C.

Or

(b) A tacheometer is set up at an intermediate point on a traverse course AB and the following observations are taken on a staff held vertically.

Staff station	Bearing	Vertical angle	Intercept	Axial reading
A	40°35'	−4°24'	2.172	1.962
B	220°35'	−5°12'	1.986	1.866

The instrument is fitted with an anallactic lens, and the multiplying constant is 100. The reduced level of A being as 350.75 m. Calculate the length of AB and the reduced level of B.