(b) Describe Stereoscopic vision and stereoscopes in detail. 5

SECTION – D

8. (a) Compare Raster and Vector model for representing geographic features. 7

(b) Describe in detail the different parameters required to locate a satellite in space. 8

9. (a) What is electromagnetic spectrum ? Describe with neat diagram. 6

(b) Write a short note on the following : 9

(i) Polarisation of EMR

(ii) Coherent radiation

(iii) Sources of EMR for remote sensing

Roll No. .....

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B. Tech. 4th Semester (Civil) Examination – May, 2023

GEOMATICS & AERIAL SURVEYING

Paper : PCC-CE-208-G

Time : Three hours] *[Maximum Marks : 75*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt ***five*** questions in all, selecting ***one*** question from each Section. Question No. **1** is ***compulsory***. All questions carry equal marks.

1. Describe the following : $2.5 \times 6 = 15$

(a) Classification of triangulation system

(b) Applications of total station

(c) Equation of time

(d) EMR characteristics

(e) Crab and drift

(f) Different GIS Software

SECTION – A

2. (a) Describe the principle and methods of trilateration. Also explain the advantages and disadvantages of trilateration. 7

(b) Two triangulation stations A and B 100 km apart have elevations of 140 m and 406 m respectively. A point C, 60 km from A has an elevation of 150 m. Check the intervisibility of A and B and if required, determine the height of signal at B so that the line of sight clears by 3 m. 8

3. (a) What is the principle of least square ? Derive the relationship of least square. 7

(b) Adjust the angles A, B and C of a triangle ABC from the following data. Use method of correlates : 8

A = 86035'11.1" w = 2

B = 42015'17" w = 1

C = 51009'34" w = 3

SECTION – B

4. (a) Explain with suitable diagram. "Napier's rules of circular parts" to solve a right angled spherical triangle. 7

(b) The altitudes of a star at upper and lower transits are 72°40' and 25°30'. Both the transits are on the north side of zenith of the place. Find the latitude of the place of observation and declination of the star. 8

5. (a) Enumerate different time systems. Describe each in detail. 7

(b) Define the following terms with neat diagram : 8

(i) Azimuth

(ii) Hour Circle

(iii) Prime Vertical

(iv) Ecliptic circle

SECTION – C

6. (a) Derive an expression for Relief Displacement on a Vertical Photograph with neat diagram. 7

(b) What do you understand by Flight Planning for aerial photograph ? Also discuss different types of overlap. 8

7. (a) A vertical photograph was taken at an altitude of 1200 m above mean sea level. Determine the scale of photograph for terrain lying at elevations of 80 m and 300 m if the focal length of camera is 15 cm. 10