SECTION – D

8. (a) What is remote sensing ? Describe briefly the development of remote sensing in India and its utility. 10

(b) Describe briefly the various methods of GPS surveying. Also give the applicability and limitations of each technique. Also describe the three segments of GPS. 10

9. (a) Describe the component subsystems of GIS. Also explain the functionalities of GIS. 10

(b) Describe the raster and vector data structures. What are the advantages and disadvantages of these two data structure ? 10

Roll No. .....

24198

B. Tech. 4th Semester (Civil)

Examination – May, 2017

SURVEYING - II

Paper : CE-208-F

Time : Three Hours] *[Maximum Marks : 100*

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 : (1) Question No. 1 is ***compulsory***. Attempt ***one*** question from each section.

(2) All questions carry equal marks.

(3) Assume missing data, if any, suitably.

1. Explain the following :

(a) Correction for curvature

(b) Terrestrial photogrammetry

(c) Zenith and nadir

(d) Mean solar time

(e) Terrestrial refraction

(f) Napier's rules of circular parts

(g) Normal equation

(h) Types of photographs

(i) Selection of triangulation stations

(j) E.D.M. instruments $10 \times 2 = 20$

SECTION – A

2. In the trignometrical measurement from two stations P and Q, the observations are : Horizontal distance between P and Q = 10450 m. Instrument at P, angle of elevation of Q = 0'25", instrument at Q, angle of depression of P = 6'25", Height of signal at P = 4.00 m, Height of signal at Q = 3.96 m, Height of instrument at P = 1.38m, Height of instrument at Q = 1.42 m. Find the difference in level between P and Q, and curvature and refraction correction. Given that Rsin 1" = 30.38m. 20

3. (a) What is triangulation ? Describe the classification of triangulation system in detail. 10

(b) What do you mean by reconnaissance ? Explain the different operations under the reconnaissance. 10

SECTION – B

4. (a) Define most probable value. Explain in details various law of weights. 10

(b) Find the most probable values of angles A and B from the following at a station O : 10

A = 9°48' 36.6"	weight = 2
B = 54° 37' 48.3"	weight = 3
A + B = 104° 26'28.5"	weight = 4

5. (a) Determine the azimuth and altitude of a star from the following data : 10

(1) Declination of star = 8°30'0"S

(2) Hour angle of star = 322°0'0"

(3) Latitude of the observer = 50° N

(b) Define the following astronomical terms with neat diagram : 10

(a) Ecliptic circle

(b) Hour circle

(c) Right Ascension

(d) Prime Vertical

(e) Angle of Declination

SECTION – C

6. (a) What do you mean by aerial camera ? Explain the different parts of an aerial camera with diagram. 10

(b) What is parallax ? Derive the parallax equation for determining the height from a pair of vertical photographs. 10

7. (a) What do you understand by Flight Planning for aerial photography ? Also discuss different types of overlap. 10

(b) Determine the number of photographs required to cover an area of 330 km^2 if the longitudinal overlap is 62% and side overlap is 25%. Assume the size of photograph is 26 cm × 26 cm. Take scale of photograph as 1 : 10000. 10