Roll No. ..... **Total Pages : 04**

34113

BT-4/M-20

SURVEYING-II

CE-210N

Time : Three Hours] [Maximum Marks : 75

Note: Attempt *Five* questions in all, selecting at least one question from each Unit.

Unit I

1. (a) Explain about reconnaissance survey in detail. Write the paints to be kept in mind while selecting triangulation section. **7**

(b) The attitudes of two proposed stations A and B, 100 km apart are respectively 420 m and 700 m. The intervening obstruction situated at C, 70 km from A has an elevation of 478 m. Ascertain if A and B are intervisible and if necessary, find by how much B should be raised so that the line of sight must nowhere be less than 3 m above the surface of the ground ? **8**

2. (a) Discuss the case of the object inaccessible when instrument station not in the same vertical plane as the elevated object. **7**

(b) In the trigonometrical measurement of the difference in level of two stations P and Q. 10480 m apart the following data were obtained :

Instrument at P, angle of elevation of Q = 0°15′

Height of instrument at P = 1.42 m

Instrument at Q, angle of depression of P = 3°33′

Height of Instrument at Q = 1.45 m

Height of signal at P = 3.95 m

Height of signal at Q = 3.92 m

Find the difference in level between P and Q and the curvature and refraction correction. Take R sin 1″ = 30.38 metres. **8**

Unit II

3. (a) Define the following :

(i) Most probable value

(ii) Most probable error

(iii) True error

(iv) Residual error. **8**

(b) An angle A was measured by different persons and following are the values :

Angle	Number of Measurement
65º30′10″	2
65º29′50″	3
65º30′00″	3
65º30′20″	4
65º30′10″	3

Find the most probable value of the angle. **7**

4. (a) Discuss in brief the laws of weights. **8**

(b) The following observations of three angles A, B and C were taken at one station :

A = 75º30′26″.3 with weight 3.

B = 55º05′39″.2 with weight 2.

C = 108º02′28″.8 with weight 2.

A + B = 130º41′12″.6 with weight 2.

B + C = 163º19′52″.2 with weight 1.

A + B + C = 238º55′38″.8 with weight 1.

Determine the most probable value of each angle. **7**

Unit III

5. (a) Find the L.M.T. of observation at a place the following data :
L.A.T. of observation = 12h 15m 45s
E.T. at G.M.N. = 5m 10.65s additive to apparent time and increasing at the rate 0.22 per hour.
longitude of the place = 20º30'W. **8**

(b) What are the co-ordinate systems ? Explain any two. **7**

6. (a) Define the following :
(i) The Azimuth (A) **5**
(ii) The Declination (δ)

(b) Explain the working principle and survey with total station with neat sketch. **10**

Unit IV

7. (a) The scale of an aerial photograph is 1 cm = 100 cm the photograph size is 20 cm × 20 cm. Determine the number of photographs required to cover an area of 100 sq. km if the longitudinal lap is 60% and the side lap is 30%. **8**

(b) What is the scale of vertical photograph ? Discuss in brief. **7**

8. Explain the basic components, data input and storage output of GIS and GPS. **15**