

G 574

(Pages : 3)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2014

Fourth Semester

Branch : Civil Engineering

SURVEYING—II (C)

(Old Scheme—Supplementary/Mercy Chance)

[Prior to 2010 Admissions]

Time : Three Hours

Maximum : 100 Marks

Part A

*Answer all questions.
Each question carries 4 marks.*

1. Write a short note on the classification of triangulation systems.
2. Briefly explain a method for extending a base line.
3. List out the laws of weights.
4. Explain the method of developing normal equation.
5. Explain the use of station pointer.
6. Write a note on effects of curvature of earth on surveying.
7. Briefly explain the categories of photogrammetry.
8. Explain three main types of scattering of radiation in atmosphere.
9. Explain the declination—hour angle co-ordinate system.
10. Obtain the relationship among L.M.T., L.A.T and equation of time.



(10 × 4 = 40 marks)

Part B

*Answer all questions.
Each question carries 12 marks.*

11. Two stations A and B are 100 km. apart. The elevations of A and B are 185 m. and 885 m., respectively. In the line of sight between A and B there are two intervening high points C and D. C is 42 km. from A and D is 81 km. from A. The elevations of peak C and D are 318 and 750 m. Check whether the line of sight from A to B clears the peaks with a minimum clearance of 3 m. above ground level. Find the height of signal required at B for intervisibility.

(12 marks)

Or

Turn over

12. While measuring a line PQ, the whole length could not be measured due to some obstructions. A station T was chosen and the angles to stations R, S and Q were measured. $\angle PTR = 18^\circ$, $\angle RTS = 34^\circ 30'$, $\angle STQ = 16^\circ$.

The length PR = 32.8 m. and SQ = 28.4 m. Find the length of SR. (12 marks)

13. Angles were measured on a station and the observations were recorded as follows :

Angle	Value	Weight
P	$65^\circ 30' 10''$	2
Q	$40^\circ 20' 20''$	3
P + Q	$105^\circ 50' 10''$	1

Find the most probable value of the angles P and Q.

(12 marks)

Or

14. Determine the most probable value of angles of a triangle ABC using the method of correlates

$$A = 46^\circ 24' 36'' \quad \text{weight} = 2$$

$$B = 54^\circ 12' 43'' \quad \text{weight} = 3$$

$$C = 79^\circ 22' 45'' \quad \text{weight} = 2$$

(12 marks)

15. (a) Derive the analytical solution of the three point problem.

(8 marks)

- (b) Explain how the soundings are located by :

(i) Two angles from the shore.

(ii) Intersecting ranges.

(4 marks)

Or

16. Determine the length and bearing of the line AB from the following data :

$$\text{Latitude of } A = 54^\circ 50' 08.52''$$

$$\text{Longitude of } A = 78^\circ 09' 48.70''$$

$$\text{Latitude of } B = 54^\circ 53' 34.22''$$

$$\text{Longitude of } B = 78^\circ 13' 49.84''$$

Latitude 1" of latitude 1" of longitude

$$54^\circ 50' \quad 30.9234 \text{ m} \quad 17.8509 \text{ m}$$

$$54^\circ 55' \quad 30.9238 \quad 17.8141$$

(12 marks)



17. The elevations of points in an area vary from 136 m. to 184 m. Aerial photographs were taken with a camera having a focal length of 200 mm. Determine ; (i) the flying height required to have a photographic scale of 1 in 8000 ; and (ii) the photographic scale if the flying height is 2500 m.

(12 marks)

Or

18. Explain the components of an ideal remote sensing system. (12 marks)
19. (a) Define and explain the following :
- (i) Altitude.
 - (ii) Right ascension,
 - (iii) Mean solar time.

(6 marks)

- (b) Find the local apparent time of an observation taken at local mean time 10 h 30 m. at longitude $78^{\circ} 30' E$. The equation of time at GMN is 3 m. 4.52 s subtractive from the apparent time and decreasing at the rate of 0.3 sec/hour.

(6 marks)

Or

20. Explain the methods for the determination of azimuth in astronomical observations.

(12 marks)

[5 × 12 = 60 marks]

