

24198

B. Tech. 4th Semester Civil Engg. F Scheme

Examination, May-2014

SURVEYING-II

Paper-CE-208-F

Time allowed : 3 hours]

[Maximum marks : 100

- Note :** (i) *Question No. 1 is compulsory.*
(ii) *All questions carry equal marks.*
(iii) *Assume missing data, if any, suitably.*

1. Explain the following :

- (a) Geodetic observation
- (b) Eccentricity of signal
- (c) Different types of error
- (d) Relief displacement
- (e) Stereoscopic vision
- (f) Zenith and nadir
- (g) Mean solar time
- (h) Indian co-ordinate system
- (i) Refraction and curvature
- (j) Types of photographs. 10×2=20

Section-A

2. (a) Derive a relationship for axis signal correction.

10

- (b) An instrument has set up at P and the angle of elevation to a vane 4m above the foot of the staff held at Q was $9^{\circ} 30'$. $PQ = 2500\text{m}$, RL of instrument axis = 2565.44m. find RL of staff station. 10
3. (a) What is triangulation ? Classify the triangulation system. 10
- (b) Derive an equation for calculating RL of a point when : base of the object is inaccessible and instrument axis at different levels. Instrument stations in the same vertical plane. 10

Section-B

4. (a) Explain in detail various law of weights. 10
- (b) The angles A, B and C of a triangle are :
- $$A = 59^{\circ}32'46''$$
- $$B = 56^{\circ}12'18''$$
- $$C = 64^{\circ}15'02''.$$

Find the probable value of A, B, and C if the values of A, B and C have weight 2, 4 and 3 respectively. 10

5. (a) Determine the azimuth and altitude of a star from the following data :
- (i) Declination of star = $8^{\circ}30'0''S$
 - (ii) Hour angle of star = $322^{\circ}0'0''$
 - (iii) Latitude of the observer = $50^{\circ}N$. 10
- (b) Explain with suitable diagram, "Napier's rules of circular parts" to solve a right angled spherical triangle. 10

Section-C

6. (a) Derive an expression for Relief Displacement on a Vertical Photograph with neat diagram. 10
- (b) 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
7. (a) What do you understand by Flight Planning for aerial photography ? Also discuss different types of overlap.
- (b) The scale of an aerial photograph is $1\text{cm} = 100\text{m}$. The photograph size is $20\text{ cm} \times 20\text{ cm}$. 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%. 10

Section-D

8. (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 structures ? 10
9. (a) What are the three segments of GPS ? Describe them briefly.
- (b) What is remote sensing ? Describe the application area of Remote Sensing. 10