

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.**

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- (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 = $8^{\circ}30'0''\text{S}$
 - (ii) Hour angle of star = $322^{\circ}0'0''$
 - (iii) Latitude of the observer = 50°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