

**BACHELOR OF ENGINEERING (CIVIL ENGINEERING) SECOND YEAR FIRST SEMESTER
SUPPLEMENTARY EXAM 2024
SURVEYING III**

Time: 3 Hours

**Full Marks: 100
[50 Marks for each part]**

Part I

Use Separate Answer scripts for each Part

**Answer brief & to the point. Assume standard value for any parameter, if required
Answer ALL Questions**

1. An area 20Km long and 15Km wide is to be covered in an aerial survey scheme having R.F. as 1:10,000 with a 200mm focal length camera and 250mm × 250mm photographic plate. The shutter interval is 8secs and the forward and lateral overlaps are 55% and 25% respectively. Without considering the effect of Crab and Drift, Determine Flying Height, Number of flight lines, Total No of Photographs to be taken and Ground Velocity. 10
2. A Total Station Survey to find the coordinates of target point B was conducted from instrument station point A. The coordinates of ground point 'A' are – Easting 1147.542m, Northing 1056.322m and elevation 49.696m. The height of the centre of the instrument and centre of target from ground stations are 1.45m and 1.6m respectively. The observed vertical and horizontal angles with respect to the line of horizon and north are 2°38'50" and 72°57'40" respectively. Determine the coordinates of the ground point 'B' 10
3. What is photogrammetry? Name the types of Photogrammetry and one major difference among them. Write the significance of the camera axis in photogrammetry study 2+6+2
4. Explain how the Photo vertical point and Photo Principal Point are identified on an aerial vertical photograph? 4
5. What is Stereoscopic pair? With a neat schematic diagram explain the following in connection with stereoscopic study –
 - a. Orientation of stereoscopic pair
 - b. Stereoscopic overlap2+4+4
6. With a typical sketch, explain how the coordinates of a target station can be obtained using total station? 6

[Turn over

Ref. No.: Ex/CE/5/T/201/2024(S)

**BACHELOR OF ENGINEERING (CIVIL ENGINEERING) SECOND YEAR FIRST
SEMESTER SUPPLEMENTARY EXAM – 2024**

Subject: SURVEYING – III Time: 3 hours Full Marks: 100 (50 in each part)

Part II

Instructions: Answer all five questions.

1. What is meant by “electromagnetic spectrum”? Which wavelength range refers to visible spectrum? Name the colors of visible spectrum? What is the wavelength range of infrared region of electromagnetic spectrum? What is the importance of infrared region in terms of remote sensing? (2+2+2+2+2)
2. How does an atmosphere impact the radiation passing through? At what point the reflection of radiation occurs? What are the different types of reflection? Differentiate in between types of reflection. (3+2+2+3)
3. With aid of diagrammatic illustration describe the following: (5*2)
 - ✓ Geostationary Orbit.
 - ✓ Low Earth Orbit.
 - ✓ Geostationary Transfer Orbit.
 - ✓ Altitude.
 - ✓ Orbital Period.
4. What do you mean by spatial and spectral resolutions? Why is temporal resolution in remote sensing important? What do you mean by radiometric resolution. (4+3+3)
5. Define “Instantaneous Field Of View”. What do you mean by “Ground Resolution Cell”? How can you describe “Dwell time of a Detector”? With diagrammatic illustration describe “Swath of a Satellite”. (2+2+2+4)