

**M. Sc. 1st Semester Examination, 2024**

**REMOTE SENSING AND GIS**

*(Platforms and Sensors)*

PAPER — RSG-102

*Full Marks : 25*

*Time : 1 hour*

**Answer all questions**

*The figures in the right hand margin indicate marks*

*Candidates are required to give their answers in their own words as far as practicable*

*Illustrate the answers wherever necessary*

**GROUP—A**

Answer any **two** questions :  $2 \times 2$

1. What are imaging sensors and how do they differ from non-imaging sensors ?

*( Turn Over )*

2. How do whiskbroom and push-broom scanners differ in terms of their design and data acquisition methods ?
3. How does Kepler's First Law describe the shape of planetary orbits ?
4. What are the typical band combinations used to generate FCCs for vegetation mapping ?

**GROUP-B**

Answer any two questions : 4 × 2

5. What are the advantages and disadvantages of side-looking scanners compared to nadir-pointing scanners ?
6. How are different spectral bands used to differentiate between surface features ?
7. A planet sweeps out an area of  $2 \times 10^6 \text{ km}^2$  in 10 days while passing through the perihelion region. How much area will it sweep out in 50 days while passing through the aphelion region ?

( 3 )

8. If a planet's semi-major axis were doubled how would its orbital period change according to Kepler's Third Law ?

**GROUP – C**

Answer any **one** question :  $8 \times 1$

9. What are the differences between a multi-spectral sensor and a hyperspectral sensor in terms of spectral resolution ? How does hyperspectral imaging help in monitoring agricultural health and crop productivity ?
10. What is microwave remote sensing and how does it differ from optical remote sensing ? What advantages do microwave sensors offer over visible and infrared sensors for Earth observation ?

**[ Internal Assessment – 05 Marks ]**

