

**M.Sc. 2nd Semester Examination, 2025**

**REMOTE SENSING AND GIS**

*( Thermal and Microwave Remote Sensing )*

PAPER — RSG-203

*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 from the following questions :**

**2 × 2**

- 1. What is meant by 'Radiant temperature' of an object ?**

*( Turn Over )*

2. What does the 'Black Body' refer to ?
3. What are the advantages of microwave remote sensing over optical remote sensing ?
4. What are VV and VH polarizations ?

**GROUP-B**

Answer any two from the following questions :

4 × 2

5. Write a note on characteristics of thermal infrared images.
6. Give a brief overview on different influencing factors related to the emissivity of materials.
7. What does sigma Nought ( $\sigma^0$ ) represent ? How do the physical properties of a target influence its sigma naught value ?

8. Define speckle noise in SAR images and explain the mechanism behind its formation in microwave remote sensing systems.

**GROUP - C**

Answer any one from the following question :

8 × 1

9. Discuss briefly Stefan-Boltzmann law in thermal remote sensing. Calculate the effective temperature of the Sun when the wavelength of maximum energy in the solar spectrum is 475 nm.

4 + 4

10. What is the NDPI in the context of dual-polarized SAR data, what physical property does it represent, and how can it be applied in vegetation analysis or land use/land cover (LULC) classification using SAR imagery?

**[ Internal Assessment — 5 Marks ]**

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