

**Total Pages—6 PG/IIIS/RSG/301.1&301.2/24**

**M. Sc. 3rd Semester Examination, 2024**

**REMOTE SENSING AND GIS**

*(Application of Geo-Informatics and Spatial  
Decision Support System)*

**PAPER – RSG-301.1 & 301.2**

*Full Marks : 50*

*Time : 2 hours*

**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**

**PAPER – RSG-301.1**

*( Application of Geo-Informatics )*

**[ Marks : 20 ]**

*( Turn Over )*

( 2 )

**GROUP – A**

Answer any **two** questions of the following :  
 $2 \times 2$

1. Mention the sources of rainfall data in GIS.
2. Which factors are responsible for soil erosion in an area ?
3. Define earthquake Magnitude and Intensity.
4. Which indices are being used for mapping aquaculture farms ?

**GROUP – B**

Answer any **two** questions of the following :  
 $4 \times 2$

5. Explain the factors influencing slope stability in relation to landslide hazards.
6. How do remote sensing contribute to flood monitoring and management ?

7. Write a short note on different spectral indices used for drought monitoring.
8. What are the essential geological factors to consider for site suitability for waste disposal, and how do hydrological factors impact the site selection process ?

**GROUP – C**

Answer any **one** question of the following :  $8 \times 1$

9. How can remote sensing be utilized to map built-up areas in urban environment ? Discuss the methods can be employed to analyze the changes in urban green space over time.  $5 + 3$
10. Explain the application of remote sensing techniques in mapping and monitoring drought vulnerability with a suitable flow chart. Which datasets are suitable for mapping soil moisture content ?  $6 + 2$

( 4 )

**PAPER – RSG-301.2**

( *Spatial Data Science and SDSS* )

[ *Marks : 20* ]

**GROUP – A**

Answer any **two** questions of the following :  $2 \times 2$

11. What is GeoAI ?
12. What do you mean by uncertainties in decision making ?
13. Mention the application of 'Big data' in spatial data science.
14. Mention the characteristics of SDSS.

( 6 )

20. Briefly mention the main elements or components of an MCDA framework. Explain the process of standardizing criterion maps in the context of spatial decision-making. 4 + 4

**[ Internal Assessment – 10 Marks]**

---

( 5 )

**GROUP—B**

Answer any **two** questions from the following :

- $4 \times 2$
15. How does GIS contribute to the functionality of SDSS ?
16. How does the deep learning is differ from traditional machine learning methods ?
17. Explain structured, unstructured and semi-structured decision problems with a chart.
18. Briefly discuss the elements of spatial data science.

**GROUP—C**

Answer any **one** question from the following :

- $8 \times 1$
19. What are the application areas of machine learning and deep learning techniques in remote sensing ? What are the primary challenges faced when applying deep learning technique to spatial data analysis ?
- $6 + 2$