Roll No.

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. /B.Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, APRIL/MAY 2025

B.E.GEOINFORMATICS
4th Semester
GI5401- REMOTE SENSING II
(Regulation 2019)

Time: 3hrs Max.Marks: 100

CO1	Understand the basic physical principles of Thermal RS, Hyperspectral RS, Microwave RS and Lidar RS.
CO2	Comprehend the unique features & methods to extract features from Thermal RS, Hyperspectral, Microwave & Lidar RS.
CO3	Apply the knowledge of Thermal, hyperspectral, Microwave and Lidar principles for selecting the suitable methods to extract information.
CO4	Evaluate various RS methodologies for verifying the applicability of the particular methodology for particular problem.
CO5	Develop the solution from the various RS learning for various applications.

BL – Bloom's Taxonomy Levels
(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

PART- A(10x2=20Marks)
(Answer all Questions)

Q.No	Questions	Marks	CO	BL
1	Differentiate SST and LST.	**2**	1	2
2	List common sources of thermal image degradation.	**2**	1	1
3	Discuss the purpose of spectral library matching in hyperspectral analysis.	**2**	2	2
4	List any two techniques used for data reduction in hyperspectral analysis.	**2**	2	1
5	Describe the concept of spectral unmixing in hyperspectral imagery.	**2**	3	1
6	Differentiate between data compression and dimensionality reduction.	**2**	3	2
7	What are the type of filters applied to the SAR data to remove the grainy noise?	**2**	4	1
8	Differentiate Layover and Foreshortening.	**2**	4	2
9	List any two typical parameters measured by a LiDAR system.	**2**	5	1
10	Describe the importance of filtering in LiDAR data processing.	**2**	5	2

PART- B (5x 13=65Marks)
(Restrict to a maximum of 2 subdivisions)

Q.No	Questions	Marks	CO	BL
11 (a)	Examine the major sources of thermal image degradation and discuss the methods used for their correction.	**13**	1	3
	OR			
11 (b)	Demonstrate how thermal remote sensing is applied in measuring LST, and examine the role in emissivity mapping, SST estimation, and ET distribution.	**13**	1	3

12 (a)	Examine the principles of diffraction and explain how they influence field spectrum measurements and spectral reflectance in imaging spectrometry.	**13**	2	3
	OR			
12 (b)	Examine the concepts of virtual dimensionality and the Hughes phenomenon in hyperspectral imaging.	**13**	2	3
13 (a)	Examine the concept of PCA and its application in hyperspectral data processing, highlighting its advantages and limitations.	**13**	3	3
	OR			
13 (b)	Demonstrate the use of Spectral Angle Mapping in the hyperspectral data classification with a neat sketch.	**13**	3	3
14 (a)	Outline the main components of the RADAR equation and their physical significance.	**13**	4	4
	OR			
14 (b)	Categorize the resolution concepts of adopted in SAR and SLAR.	**13**	4	4
15 (a)	Break down the typical parameters of a LiDAR system and categorize how each parameter affects data quality and accuracy.	**13**	5	4
	OR			
15 (b)	Analyze the differences between space borne and airborne LiDAR missions in terms of applications, advantages, and limitations.	**13**	5	4

PART- C(1x 15=15Marks)

(Q.No.16 is compulsory)

Q.No	Questions	Marks	CO	BL
16	Decide the most appropriate SAR techniques namely Scatterometry, Altimetry, Polarimetry, and Interferometry for applications in agricultural monitoring and landslide detection. Support your decisions with reasons.	**15**	4	5