RollNo. | | | | | | | | | | |

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

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

B.E.GEOINFORMATICS

5thSemester

GI5071 - GEOINFORMATICS FOR AGRICULTURE AND FORESTRY

(Regulation 2019)

Time:3hrs Max.Marks: 100

CO1	Understand the spectral properties of agricultural crops and their applications.
CO2	Understand the spectral properties of soil and applications.
CO3	Understand the RS and GIS capabilities to land management.
CO4	Understanding the RS and GIS application to damage assessment due to disaster.
CO5	Understand the spectral properties of Forest species and application to forest management.

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	Describe the significance of Red-Edge in determining crop health.	**2**	1	1
2	List the biophysical parameters of the crops that can be monitored from remote sensing methods.	**2**	1	1
3	What is the difference between the RVI and DPSVI?	**2**	2	2
4	Explain the similarities between Saline and Alkaline Soils.	**2**	2	2
5	Explain the significance of DSSAT.	**2**	3	2
6	List out the most important characteristics of the LULC classification system.	**2**	3	1
7	Explain why SAR is considered the best performing tool for flood mapping?	**2**	4	2
8	Describe the fertilizer burn and the reasons behind its occurrence?	**2**	4	2
9	Explain any two sustainable forest management practices.	**2**	5	2
10	Describe forest biomass.	**2**	5	1

PART- B (5x 13=65Marks)

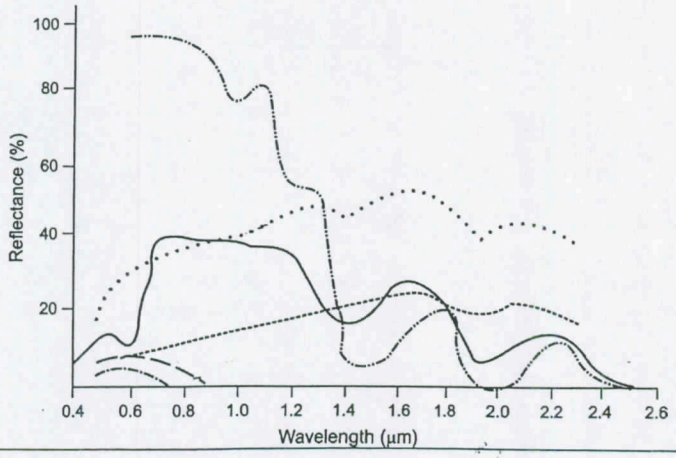
(Restrict to a maximum of 2 subdivisions)

Q.No	Questions	Marks	CO	BL
11 (a)	Examine the scattering properties and optical properties of the crops with a neat sketch.	**13**	1	3
	OR			
11 (b)	Demonstrate the significance of the various optical and microwave remote sensing vegetation indices in above-ground biomass estimation.	**13**	1	3
12 (a)	Explain the methodology of Soil erosion assessment using Remote Sensing with case study.	**13**	2	3
	OR			
12 (b)	Examine the soil properties using a spectral reflectance curve.	**13**	2	3
13 (a)	i) Examine the types of LULC models and identify the specific	**6**	3	3

	LULC model under which supervised and unsupervised classification techniques are categorized. ii) Write down the various LULC classification categories listed for agriculture by the NRSC for a scale of 1:50000 and evaluate the extent to which Synthetic Aperture Radar (SAR) and Hyperspectral data can be effectively utilized for classification up to different hierarchical levels.	**7**		
	OR			
13 (b)	i) Examine the hypothesis adopted in Microwave Remote Sensing in classifying settlements, agricultural areas, and waterbodies. ii) Examine the different modules in the DSS-DSSAT system and create a flowchart that clearly and concisely illustrates their significance.	**6** **7**	3	3
14 (a)	Analyze the different types of drought and how Remote Sensing can be utilized to monitor them effectively.	**13**	4	4
	OR			
14 (b)	Analyze the different types of floods and how Remote Sensing can be utilized to assess the damage caused to crops by floods.	**13**	4	4
15 (a)	Analyze the factors contributing to forest fires and how remote sensing can assist in evaluating and forecasting them.	**13**	5	4
	OR			
15 (b)	Analyze the factors contributing to forest fires and explain how remote sensing techniques can be used to assess and predict them.	**13**	5	4

PART- C(1x 15=15Marks)

(Q.No.16 is compulsory)

Q.No	Questions	Marks	CO	BL
16	i) What is the major limitation of optical remote sensing-based vegetation indices that has been effectively solved by the SAR-based vegetation indices?	**9**	1	5
	ii) Identify the features in the given spectral reflectance curve.  	**6**	1	5