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

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. /B.Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, NOV / DEC 2024

B.E.GEOINFORMATICS
5th Semester
GI5071 Geoinformatics for Agriculture and Forestry
(Regulation2019)

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 the Red-Edge Chlorophyll Vegetation Index.	2	1	1
2	Differentiate Mono-cropping and Fallow cropping systems.	2	1	2
3	List any four physical and chemical parameters of the soil that can be mapped from remote sensing data modeling.	2	2	1
4	Explain the factors influencing the soil reflectance properties.	2	2	2
5	List the five important considerations during LULC Mapping.	2	3	1
6	Describe the components and significance of DSSAT.	2	3	2
7	What is fertilizer burn, and what are the reasons behind its occurrence?	2	4	1
8	Differentiate Agricultural drought and Hydrological drought.	2	4	2
9	What is Forest Biomass?	2	5	1
10	Explain any two sustainable forest management practices.	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 optical properties of the crops using a spectral reflectance curve with a neat sketch and list any five vegetation indices derived based on the spectral and scattering properties of the crops.	13	1	3
	OR			
11 (b)	Examine the field protocols for crop sampling and list the key vegetation measurements typically performed during field activity.	13	1	3
12 (a)	Examine the use of integrating optical and microwave remote sensing techniques to assess soil erosion and sedimentation studies.	13	2	3
	OR			
12 (b)	Examine the field protocols for soil sampling and list the key soil measurements typically performed during field activity.	13	2	3

13 (a)	Determine the hypothesis adopted in optical remote sensing and SAR techniques in classifying LULC categories.	**13**	3	3
	OR			
13 (b)	Examine the different modules in the DSS-DSSAT system and create a flowchart that clearly and concisely illustrates their significance.	**13**	3	3
14 (a)	Analyze the different types of floods and the role of SAR can be utilized to assess the damage caused to crops by floods.	**13**	4	4
	OR			
14 (b)	Analyze the different types of stresses that plants can experience and explain how remote sensing can be utilized to identify them.	**13**	4	4
15 (a)	Examine various remote sensing techniques in forest management applications.	**13**	5	3
	OR			
15 (b)	Demonstrate the factors contributing to forest fires and explain how remote sensing techniques can be used to assess and predict them.	**13**	5	3

PART- C(1x 15=15Marks)

(Q.No.16 is compulsory)

Q.No	Questions	Marks	CO	BL
16	i) Evaluate the characteristics of natural and saline hardpans categories and suggest the suitable remote sensing techniques to map them.	**10**	4	5
	ii) Evaluate the suitability of the sensors listed below for detecting and analyzing hardpan conditions (both natural and saline) at local scale and Indicate their potential effectiveness and classify each sensor as either **suitable** or **unsuitable** in the accompanying table.	**5**	4	5

SMAP	
Sentinel-1	
Sentinel-2	
RISAT	
ALOS PALSAR	
NISAR	
Landsat	
MODIS	
PRISMA	
LISS-IV