

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

Seventh Semester

Agricultural Engineering

AI3701 – Remote Sensing and Geographical Information System

Regulations - 2021

Duration : 3 Hrs

Maximum : 100 Marks

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Define remote sensing and its significance in modern science.	RE	1	2
2.	Discuss the importance of advanced remote sensing satellites in environmental monitoring.	UN	1	2
3.	Show the concept of image enhancement in digital image processing.	RE	2	2
4.	Define data products based on the level of processing. How do they differ in output?	RE	2	2
5.	Define a map and explain its primary function in geographic representation.	RE	3	2
6.	List the four main components of a GIS and provide a brief description of each.	UN	3	2
7.	Differentiate between raster and vector data models.	UN	4	2
8.	Show the concept of map overlay in GIS.	RE	4	2
9.	How remote sensing data can improve the effectiveness of management decision support systems?	RE	5	2
10.	How remote sensing can aid in assessing crop water requirements?	RE	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Compare and contrast active and passive remote sensing. Discuss their principles, applications, and provide examples of sensors used in each type.	AP	1	13
	Or			
	b Explain the different types of resolution in remote sensing: spectral, spatial, radiometric, and temporal resolution.	AP	1	13
12.	a Discuss the differences between supervised and unsupervised image classification methods in digital image processing. What are the advantages and disadvantages of each approach?	AP	2	13
	Or			
	b Develop key elements of visual interpretation in image analysis. How do these elements contribute to effective image interpretation?	AP	2	13

13.	a	Explain the key characteristics of maps that differentiate them from other forms of geographic representation. How do these characteristics enhance the usability and interpretation of maps?	AP	3	13
		Or			
	b	Examine the hardware and software components essential for the operation of GIS. How do advancements in technology impact the functionality and efficiency of GIS applications?	AP	3	13
14.	a	Explain the concept of spatial interpolation in GIS and its significance.	AP	4	13
		Or			
	b	Compare and contrast spatial and non-spatial data in the context of GIS.	AP	4	13
15.	a	Evaluate the applications of remote sensing and GIS in precision agriculture. Discuss how these technologies can improve crop yield and resource management.	AP	5	13
		Or			
	b	Discuss the various methodologies used for estimating crop acreage using remote sensing technologies.	AP	5	13

*PART – C (Marks 1*15 = 15)*

<i>Q.No</i>		<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
16.	a	Discuss the method of classifying soil types using digital numbers from satellite imagery. How can this classification be integrated into agricultural planning?	AP	5	15
		Or			
	b	Discuss the concept of data compression and its significance in GIS, particularly in relation to storage and data transfer.	AP	4	15