Roll No. | | | | | | | | | | |

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

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

GEOINFORMATICS

GI5502 DIGITAL IMAGE PROCESSING

(Regulation 2019)

Time:3hrs Max.Marks: 100

CO1	Understand about Remote sensing and Image processing systems
CO2	Acquire knowledge about the source of error in satellite image and also to remove the error from satellite image.
CO3	Select appropriate image Enhancement techniques based on image characteristics
CO4	Classify the satellite image using various method and also evaluate the accuracy of classification.
CO5	Apply the advanced image classification methods and conduct lifelong research in the field of image processing.

BL – Bloom's Taxonomy Levels

(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

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

Q.No	Questions	Marks	CO	BL
1	Define Digital Image Processing. How image can be represented?	2	1	L1
2	Write short note on various formats used to store the satellite images..	2	1	L1
3	What do you understand by the term " Preprocessing"?	2	2	L2
4	Write short note on different types of geometric errors.	2	2	L2
5	How will you decide the size of the kernel in the image enhancement ?	2	3	L2
6	Differentiate between histogram and scattergram.	2	3	L1
7	Write short note on training sites and separability test.	2	4	L1
8	Write short note on Baye's theorem	2	4	L2
9	Differentiate between Fuzzy set and Crisp set.	2	5	L2
10	Define Expert system. Draw the architecture of an Expert System.	2	5	L1

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

Q.No	Questions	Marks	CO	BL
11 (a) (i)	Explain various factors to be considered while selecting hardware and software for image processing.	13	1	L3
	OR			
11 (b) (i)	Describe the working principles and the payload characteristics of Landsat 4 and 5 group of satellites with neat sketch.	13	1	L3
12 (a) (i)	Explain various steps involved in the geometric rectification of the satellite images.	13	2	L4
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	OR			
12 (b) (i)	Describe various methods used to correct the atmospheric effects in the satellite image.	13	2	L4
13 (a) (i)	How the image in spatial domain is converted into frequency domain using Fourier transform? List out the uses of Fourier transform in digital image processing	13	3	L3
	OR			
13 (b) (i)	What is Resolution Pyramid? Explain the basic concept of Scale space transform.	6	3	L3
(ii)	What is PCA? Discuss it in detail. What are its uses image processing?	7	3	L3
14 (a) (i)	Describe different supervised classification methods used to classify the satellite images.	13	4	L4
	OR			
14 (b) (i)	Explain different unsupervised classifiers used to classify the satellite image.	13	4	L4
15 (a) (i)	Discuss about various steps involved in Fuzzy logic to classify the satellite image.	13	5	L4
	OR			
15 (b) (i)	Describe about various process involved in BPN to classify the satellite image with neat sketch.	13	5	L4

PART- C (1x 15=15 Marks)
(Q.No.16 is compulsory)

Q.No	Questions	Marks	CO	BL
16. (i)	Differentiate between supervised and unsupervised classification.	3	5	L5
(ii)	Describe in detail about various process involved in Sub-pixel classification.	12	4	L6

ADDITIONAL CONTROLLER OF EXAMINATIONS
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