

(4)

7. Explain errors of omission and errors of commission.
8. Explain parametric, non-parametric and hybrid approaches to classification.

GROUP—C

Answer *any one* question : 8×1=8

9. Illustrate minimum distance, parallelepiped and maximum likelihood classifier methods. 8
10. Describe the common sampling techniques used in accuracy assessment for remote sensing classifications. What are the fundamental components of a decision tree algorithm in remote sensing classification? 3+5

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2024

M.Sc. 2nd Semester Examination

REMOTE SENSING & GIS

PAPER : RSG-201

**(Digital Image Processing & Information
Extraction)**

Full Marks : 40

Time : 2 hours

Answer **all** questions.

The figures in the right-hand margin indicate marks.

*Candidates are required to give their answers
in their own words as far as practicable.*

Illustrate the answers wherever necessary.

SECTION—A

PAPER : RSG-201.1

(Digital Image Processing)

GROUP—A

Answer any **two** questions : 2×2=4

1. How can a digital image be represented?
2. What is the purpose of image averaging?

(2)

3. What is meant by image filtering?
4. Define Contrast stretching.

GROUP—B

Answer any **two** questions : 4×2=8

5. Why is band rationing important in Digital Image Processing (DIP)?
6. Explain how gradient filters can be used for edge detection in images. What characteristics of edges are exploited by these filters?
7. Briefly describe about Gray Level Slicing.
8. Differentiate between univariate and multivariate image statistics.

GROUP—C

Answer any **one** question : 8×1=8

9. What is EVI (Enhanced Vegetation Index)? Is it different from NDVI (Normalized Difference Vegetation Index)? Explain. 3+5
10. Discuss very briefly about 'Producer's accuracy', 'User's accuracy' and 'Overall accuracy' in Digital Image Processing. 8

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(Continued)

(3)

SECTION—B

PAPER : RSG-201.2

(Information Extraction from Satellite Images)

GROUP—A

Answer any **two** questions : 2×2=4

1. How can supervised and unsupervised classification methods be distinguished from each other?
2. What are the key aspects of data calibration in remote sensing for accurate image interpretation and classification?
3. How does ground truthing contribute to image classification?
4. What is temporal pattern recognition and how does it differ from spatial pattern recognition?

GROUP—B

Answer any **two** questions : 2×4=8

5. What are spatial and spectral pattern recognition approaches used in image processing and analysis?
6. Compare and contrast Isodata with K-means clustering algorithms.

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(Turn Over)