M.Sc. 2nd Semester Examination, 2023

REMOTE SENSING AND GIS

(*Digital Image Processing and Information Extraction*)

PAPER – RSG-201.1 & 201.2 (New Syllabus)

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

PAPER – RSG 201.1

(*Digital Image Processing*)

[*Marks* : 20]

GROUP – A

Answer any **two** questions : 2×2

1. What do you understand by digital image ?

2. What is geometric correction in digital image processing ?

3. What is radiometric correction in digital image processing ?

4. What is image fusion ?

GROUP – B

Answer any **two** questions : 4×2

5. Write a short note on Histogram Equalization in digital image processing.

6. Briefly explain the applications of Principal Component Analysis in digital image processing.

7. What do you understand by image transformation and image enhancement ?

8. Write short notes on contrast stretching in digital image processing.

GROUP — C

Answer any **one** question : 8 × 1

9. What is spatial filtering ? Why spatial filtering is very much important for information extraction from an image ? 3 + 5

10. What is image index ? Why is NDVI used ? 5 + 3

PAPER — RSG 201.2

(*Information Extraction from Satellite Images*)

[*Marks* : 20]

GROUP — A

Answer any **two** questions : 2 × 2

11. What do you mean by spectral signature ?

12. Write different sources of error in change detection analysis.

13. What do you mean by 'Ground Truth' ?

14. What are errors of omission ?

GROUP – B

Answer any **two** questions : 4 × 2

15. What are the differences between hard and soft classification system ?

16. Write some advantages of unsupervised classification over supervised satellite image classification technique.

17. Compare between Parametric and Non-parametric classifiers.

18. Discuss the importance of 'training samples' in supervised classification.

GROUP – C

Answer any **one** question : 8 × 1

19. Discuss about three most frequently used supervised

classification techniques of satellite image classification with suitable illustrations.

20. Discuss various steps and methods of accuracy assessment in post-digital image classification.

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