2019

MSc

2nd Semester Examination

REMOTE SENSING & GIS

PAPER – RSG -201

Full Marks: 40

Time: 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their

Own words as far as practicable.

Illustrate the answers wherever necessary.

M.SC OLD SYLLABUS

RSG – 201 (GROUP – A)

[DIGITAL IMAGE PROCESSING]

[MARKS: 20]

ANSWER ANY TWO QUESTIONS: 2×10

1. a) Define the concept of digital image processing.
   b) What is spatial frequency?
   c) What are the non-systematic geometric errors encountered in a digital remote sensing data?
   d) What do you mean by "image reduction" and "image magnification"?

   2+1+3+4 =10

2. a) Discuss about PCA Transformation.
   b) Discuss about spatial and spectral resolution. 5+5 =10

3. a) Explain the Tasseled Cap Transformation.
   b) Discuss the merits and demerits of visual and computer based classification techniques in Land use and Land cover analysis. 3+7=10

4. Write short notes on : (Answer any two) 2×5=10
   a) Band Ratio
   b) Radiometric enhancement
   c) Density slicing
   d) NDVI

(Continued)

RSG – 201 (GROUP – B)

INFORMATION EXTRACTION FROM SATELLITE IMAGES

(ANSWER ANY TWO QUESTIONS) **2×10 = 10**

1. a) Spatial and spectral pattern recognition – short notes.
   b) Explain ISO data classification method.
   c) 20, 24, 36, 42, 28, 98, 76, 38, 26, 44, 64, 18, 24. 48, 38, - classify these (2, 4, 4) DN values into 3 classes using K – mean method.

2. a) Temporal pattern recognition – describe. (2,4,4)
   b) Write a short note on change defection.
   c) Explain the minimum distance to mean classifier and solve the given problem. The means DN Values of soil, vegetation and water body in red band is 30, 60 & 10 and in NIR band is 40, 120, 5. Classify the unknown pixels having DN values (40, 50), (70, 26), (20, 18), (26, 16).[first value is red band, second value is NIR band]

3. a) Write short notes on parametric and non-parametric classifiers.
   b) Write short note on data collection for LULC map validation.
   c) What is commission and omission errors. [2, 2, 3, 3]
   d) Calculate overall and Kappa accuracy with the given data.

	Built up	Crop land	forest	Water body
Built up	60	5	0	10
Crop land	2	100	6	0
Forest	0	4	80	0
Water body	8	0	0	40

4.a) Write short note on Spectral Angle Mapper (SAM) classification and hybrid classification.

b) Among which classes miss – classification occurs and why ? Built-up area, crop land,Fallow land, Forest (Dense), Forest (open), Grassland, Moist land, sand, wet land and Water body.

c) Create decision tree using the following data –

Class	Mean of Red bond	Mean of NIR Bond
Built – up	30	20
crop land	16	80
Forest	20	60
Sand	60	90
Water body	24	10

(2,4,4)