

2016

M.Sc.

2nd Semester Examination

REMOTE SENSING AND 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.

Use Separate answer book for each Group.

Group-A

(Digital Image Processing)

[Marks : 20]

Answer any two questions. 2×10

1. (i) What are the non-systematic geometric errors encountered in digital remote sensing data ?
- (ii) Describe the process of rectification.

5+5

(Turn Over)

2. (i) What is the difference between multidimensional image and multispectral image ?
- (ii) Describe three principal data formats for storing digital data collected by remote sensing satellites. 3+7
3. (i) Explain the term Digital image.
- (ii) What are sources of errors in raw satellite data ?
- (iii) Explain with neat diagram the Field of View (FOV) and Swath ?
- (iv) IRS-1C LISS-III: camera's altitude above ground is 817000m; FOV cross track Field of View is 0.0000288° Radian (π radian = 180° Degrees); number of detectors = 6000. Find size of a pixel cross track (in m) and swath width (in Km). 2+2+2+4
4. Write short note on *any five* of the following : 2×5
- (i) Image De-skewing.
- (ii) Radiance, irradiance and reflectance.
- (iii) What is Probability Distribution Function (normalized histogram function) ?
- (iv) LoG operators.

- (v) How different PCA components are correlated ?
- (vi) What is Quadtree ?

Group-B

(Information Extraction from Satellite Images)

[Marks : 20]

Answer any *two* questions. 2×10

1. Enumerate the difference between Spectral responses and Spectral Signatures of objects. Explain elaborately the spectral signatures of major cover types on Earth's surface. 2+8

2. (a) What are the steps involved in supervised classification ?

- (b) Why 'Maximum Likelihood classifier' algorithm is not always suitable classification procedure in supervised classification. 5+5

3. (a) How can you assess the accuracy of a classification ?

- (b) What is commission error ?

- (c) Explain about different types of model applying for change detection. 3+2+5

4. Write short notes on the following :

$2\frac{1}{2} \times 4$

- (i) Clustering techniques.
 - (ii) Density slicing.
 - (iii) Pure and Mixed pixels.
 - (iv) Data Compression.
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