

2009**M.Sc.****2nd Semester Examination****REMOTE SENSING & GIS****PAPER—V (RG—1201 & 1202)***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.

Write the answers of questions for each module in separate books.

Digital Image Processing**RG—1201 (Full Marks : 20)**

Answer any *two* questions.

1. (a) Give your concept of digital image and compare it with its analog counterpart as far as image interpretation is concerned.
- (b) What are the non-systematic geometric errors encountered in a digital remote sensing data ?
- (c) What do you mean by image to map registration ?
(2+3)+3+2
2. What is edge enhancement ? Why it is necessary ? Derive the expression to compute the weights of two-dimensional second derivative edge enhancement filter. How this filter is used on an image ?
1+2+5+2

(Turn Over)

3. (a) What do you mean by image reduction and image magnification ?
 (b) Write how "Min-max" contrast stretching facilitates the image interpretation process with an example.
 (c) Write potential remote sensor vs. biophysical variables in ocean surface roughness and phytoplankton concentration. 3+3+2+1+1
4. (a) What is vegetation index ?
 (b) How it is different from NDVI ?
 (c) Write the expression of TVI.
 (d) Explain the Tasseled Cap Transformation. 2+2+2+4

**Information Extraction,
Image Processing System Consideration**

RG—1202 (Full Marks : 20)

Answer any two questions.

1. What do you mean by signature ? State the importance of training site selection in supervised classification. What is the importance of 'Thresholding' in supervised classification system. What are the common method used in classification of mixed pixels ? 2+2+3+3
2. State the similarity & dissimilarity between image filtering & image enhancement. State the nature of Gaussian histogram. Explain the process of histogram equalization. Write about different types of convolution filters for interpretation of RS data. 1+2+3+4
3. Narrate the common methods of accuracy estimation in post classification analysis. Enumerate the evaluation procedure of error matrices. 7+3
4. What do you mean by ground truthing ? Why it is important to validate the pre-field works ? Briefly discuss about the required Hardware configuration for proceeding the DIP operation. 2+3+5