Ref. No. : Ex/IT/T/413/2018

B.E. Information Technology Fourth Year First Semester – 2018

Image Processing Time: 3hrs Full Marks: 100

Use Separate answer scripts for each Group/ answer any five questions etc.

Group I:

Answer any 10 Questions **10 X 2=20**

1. Write some good application areas of DIP?
2. Define neighbours of a pixel.
3. Write the difference between image restoration and image enhancement.
4. What is the advantage of colour in image processing applications?
5. What is meant by image segmentation?
6. What is Image Histogram? What is the importance of it?
7. What is Morphological Image Processing?
8. Explain the basic concepts of sampling & quantization in generation of digital image.
9. Define brightness, hue and saturation.
10. What is Multi Resolution Analy
11. Define Thresholding.
12. What is Mexican hat?

Group II

Answer any 10 Questions **10 X 6=60**

1. What are the Key Stages in Digital Image Processing? Write in brief about each stage.
2. With an example, explain the concept of histogram equalization.
3. With an example, write about Opening and Closing for gray scale images.
4. Explain about morphological hit-or-miss transform.
5. Explain the concept of weighted average filter.
6. Write about Wavelet and Fourier transforms.
7. Give description about *Laplacian and Sobel Operators for Image Enhancement.*
8. How a point and a line can be detected? What should be the type of masks?
9. Write about Edge Detection Technique? What are the popular masks used?
10. How Frequency Domain Filtering is done?
11. Write an algorithm to segment a Satellite Image? Try to determine the number of heterogeneous regions in the image.
12. Write an algorithm to remove salt and pepper noise from an image.

Group III

Write Very Short Note on any 4 items given below **4 X 5=20**

1. Linear and Nonlinear Operations
2. Convolution and Correlation
3. Erosion and Dilation
4. Mean and Median Filter
5. RGB and HSI Models