

FACULTY OF INFORMATICS

Code No. 5303 / S

B.E. 4/4 (I.T.) I-Semester (Supplementary) Examination, June / July 2012

Subject : Digital Image Processing
(Elective-III)

Time : 3 Hours

Max. Marks: 75

Note: Answer **all** questions of Part - A and answer any **five** questions from Part-B.

PART – A (25 Marks)

1. Differentiate image processing, image analysis and computer vision.
2. What is histogram? How is it useful?
3. What is spatial and gray level resolution?
4. State the filters used for image smoothing.
5. What is noise? State the various noise models.
6. What is dilation and erosion?
7. State Sobel and Prewitt filters.
8. What are the Fourier descriptors?
9. What are the various color Models? Which model is preferred for printing purpose?
10. What is Psycho visual Redundancy?

PART – B (5x10=50 Marks)

11. What is digital image processing? Explain fundamental steps in digital image processing. (10)
12. Explain Image sharpening methods in frequency domain. (10)
- 13.(a) Explain Minimum Mean Square Error Filtering. (5)
(b) Explain Opening and closing operations. (5)
- 14.(a) Explain thresholding approach of segmenting an image. (5)
(b) Explain how minimum distance classifier is useful for classifying different pattern classes. (5)
- 15.(a) Explain Image representation using shape numbers. (5)
(b) Explain correlation based image matching. (5)
- 16.(a) Explain the Huffman coding in image compression. (5)
(b) Explain color transformation. (5)
17. Write short notes on the following :
(a) Power law transformations (2.5)
(b) Logic operations on images (2.5)
(c) Piecewise-linear transformations (2.5)
(d) Visual perception (2.5)