Code No. 6415 / N

FACULTY OF INFORMATICS

B. E. 4/4 (IT) I – Semester **(New) (Supplementary)** Examination, July 2010

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 (10 x 2.5 Marks = 25 Marks)

1) What is digital image processing? What are the fundamental steps in digital image processing?
2) What is image Sampling and Quantization?
3) What is piece-wise linear transformation?
4) State Convolution theorem on images.
5) How is median filter used for noise removal?
6) Distinguish between image Enhancement and Restoration
7) How will you detect isolated points in an image?
8) How is an image represented.
9) What are the additive and subtractive color Models. What are their applications?
10) Define Inter pixel redundancy.

Part B (5 x 10 Marks = 50 Marks)

11) a) Explain the Histogram Equalization method of image enhancement. (5 marks)
b) What do you mean by Histogram Matching? Explain. (5 marks)
12) a) Explain basic steps in filtering in the frequency domain. (5 marks)
b) Name and explain different smoothing methods that try to avoid image blurring (5 marks)
13) Explain about the following morphological operations used in gray scale image representation:
(a) Dilation (b) Erosion (c) Opening (d) Closing. (4x2.5 marks)
14) Explain Segmentation by
a) Region growing (5 marks)
b) Region splitting and merging (5 marks)
15) a) What is meant by a descriptor? Explain the Fourier descriptors and their properties. (5 marks)
b) Give the mask used for detecting horizontal, vertical, $+45^0$ and -45^0 slanting lines. (5 marks)
16) a) What is pseudo color image processing? Explain the various methods of pseudo color image processing. (5 marks)
b) Explain the LZW coding in image compression. (5 marks)
17) Write short notes on the following.
a) Chromaticity diagram (2.5 marks)
b) Distance measures (2.5 marks)
c) Bit plane slicing (2.5 marks)
d) Zero crossing. (2.5 marks)

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