

Total No. of Questions : 12]

SEAT No. :

P3895

[Total No. of Pages : 2

[4759] - 208

B.E. (Computer Engineering)
IMAGE PROCESSING (Elective - I)
Image Processing
(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) Answer any 3 questions from each section.*
- 2) Answers to the two sections should be written in separate answer books.*
- 3) Neat diagrams must be drawn, wherever necessary.*
- 4) Figures to the right indicate full marks.*
- 5) Use of logarithmic tables, slide rule, electronic pocket calculator and steam tables is allowed.*
- 6) Assume Suitable data, if necessary.*

SECTION - I

- Q1)** a) Explain the fundamental steps in Digital Image Processing. [8]
b) With reference to relation between pixels, explain the following terms. [8]
i) Neighbors of Pixel
ii) 4-connectivity
iii) 8-connectivity
iv) Mixed connectivity

OR

- Q2)** a) Write short note on Digital imaging Hardware and Software. [8]
b) What is digital image processing? Explain sampling and quantization. [8]
- Q3)** a) What is mean by image enhancement? List and explain image enhancement techniques in spatial domain. [8]
b) What is need of image preprocessing? Explain Log transformation and Power-Law transformation. [8]

OR

- Q4)** a) Explain Hadamard and Walsh transformation. [8]
b) Explain the method of contrast stretching using histogram equalization. [8]
- Q5)** a) What is image segmentation? Explain image segmentation based on thresholding. [10]
b) Explain Chain codes and B-Splines for boundary representation. [8]

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OR

- Q6)** a) With the help of appropriate mask explain the following. [10]
i) Point detection
ii) Line detection
iii) Edge detection
b) What is region splitting and merging? [8]

SECTION - II

- Q7)** a) What do you mean by Image denoising? Explain different noise model in image? [10]
b) What is image restoration? How it differs from image enhancement. [8]

OR

- Q8)** a) Write short note on [10]
i) Lucy Richardson Filtering
ii) Blind Deconvolution
b) Explain band-pass filter and Notch filters [8]

- Q9)** a) What is the need of object representation and classification method. [8]
b) Explain the methods used for lossless image compression. [8]

OR

- Q10)** a) What are the advantages of variable-length coding? [8]
Find the Huffman code for following symbols.

Source	a1	a2	a3	a4	a5	a6
Probability	0.1	0.4	0.06	0.1	0.04	0.3

b) Explain how chain code can be used for boundary representation. [8]

- Q11)** a) Write short note [10]
i) Principal Component Analysis
ii) Character Recognition Application
b) What is Image Pyramids? [6]

OR

- Q12)** a) How the compression is achieved in JPEG 2000. [6]
b) Write short note [10]
i) Haar Wavelet
ii) Sub-band coding

