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Total Number of Pages : 01

M.TECH

M.TECH 1ST SEMESTER REGULAR EXAMINATIONS, DECEMBER 2017
DIGITAL IMAGE PROCESSING AND FEATURE EXTRACTION

Branch: EC, Subject Code:MECPE1053

Time: 3 Hours

Max Marks : 70

The figures in the right hand margin indicate marks.

PART-A

(2X10=20 MARKS)

1. Answer the following questions .

- What is Dynamic Range of an image?
- What do you meant by Colour model?
- Define Digital image? What is gray scale image?
- Find the number of bits required to store a 256 X 256 image with 32 gray levels.
- Why DCT is preferred for image compression?
- Give the difference between Enhancement and Restoration
- What are the coding systems in JPEG?
- Write the applications of segmentation.
- Define subjective brightness and brightness adaptation?
- Explain the categories of digital storage?

PART-B

(5 X 10=50 MARKS)

Answer any five questions from the following.

- a) Explain the following mathematical operations on digital images

 - Array versus Matrix operations
 - Linear versus Nonlinear Operations.
- b) Explain the following two properties of 2D-DFT:

 - Convolution
 - Correlation
- a) What is meant by histogram specification? Explain.

b) Explain image smoothing using ideal low pass filters and Butterworth low pass filters.
- a) What is Pseudo colour image processing? Explain.

b) Explain about colour image smoothing.
- a) Explain two-band sub band coding and decoding system.

b) With an example, explain about run-length coding.
- a) With necessary figures, explain the opening and closing operations.

b) Discuss about region based segmentation.
- (a) Explain the concept of Un sharp masking and High boost filtering.

(b) Explain image sharpening using Butterworth high pass and Gaussian high pass filters.
- a) Explain the properties of IDFT.

b) With an example, explain about arithmetic coding