Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

MCIT-302(B)

M.E./M.Tech., III Semester

Examination, December 2020

Digital Image Processing

(Elective-II)

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) With a neat block diagram explain the components of a general purpose image processing system.
   b) Explain the concept of image sampling and quantization in image processing with an example.

2. a) Give an expression for 2D discrete sine transform and discuss its properties.
   b) Explain and compare ideal low pass filter and Butterworth filter for image smoothening.

3. a) Write the generation of NXN Hadamard transform matrix by iterative rule mention its advantages and properties.
   b) Explain Global Thresholding using Otsu's method.

4. a) With necessary graphs, explain the log and power law transformation used for spatial image enhancement.
   b) Explain image sharpening in spatial domain using second order Laplacian derivative.

5. a) Briefly explain how arithmetic and logic operations are used for image enhancement.
   b) What is Homomorphic filtering? With block diagram, explain the homomorphic approach for image enhancement and list the advantages.

6. a) Explain the basic model of image restoration process. Also, with necessary equations explain the most common DDFs in an image processing.
   b) What is pseudo color image processing? Explain gray level to color transformations.

7. a) Explain the following boundary description:
      i) Shape numbers
      ii) Fourier description
   b) Develop a procedure for converting:
      i) RGB to HSI model
      ii) HSI to RGB model

8. Write short notes:
   i) Image Segmentation
   ii) Texture Classification
   iii) Hough Transform

******