Roll No. | | | | | | | | | | | | |

Total No. of Pages : 01

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M.Tech.(CSE Engg./E-Security) (Sem.–2)

DIGITAL IMAGE PROCESSING

Subject Code : CS-502

Paper ID : [E0682]

Time : 3 Hrs. Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. **Attempt any FIVE questions out of EIGHT questions.**
2. **Each question carries TWENTY marks.**

Q1. a) How edge linking and boundary detection is performed using Hough transform? Give an example.

b) Describe the features of various components of digital image processing system.

Q2. a) What is the role of histogram in image representation? Why histogram equalization is required?

b) Explain the region splitting and merging phases of region-based segmentation process.

Q3. Differentiate between following with the help of suitable examples :

a) Spatial and Intensity Resolution.

b) Convolution and Correlation of 2D-DFT.

Q4. a) List and discuss various parameters used to measure image information. Also discuss the role of fidelity criteria.

b) What are various factors that add complexity to an object recognition system?

Q5. a) What do you mean by *"Double Line Effect"*? Give an example of line mask that can be used for line detection.

b) List various decision theoretic methods for object recognition. Explain any one method in detail. Mention the assumptions taken, if any.

Q6. Explain various techniques and mechanisms for image boundary representation.

Q7. a) How image segmentation is performed in various color spaces?

b) Explain any one lossless compression technique in details with suitable example.

Q8. Write short notes on the following :

a) Image Negatives.

b) Fourier Transformation.

c) Sampling and Quantization.

d) Lossy Compression.