SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR 49

ROLL No: | | | | | | | | | | | | | **Total number of pages:[1]**

M.Tech.-CSE 3rd Sem

Digital Image Processing

Subject Code: MTCS1-375

Paper ID:_____

Time allowed: 3 Hrs **Max Marks: 60**

Important Instructions:

- **Attempt all questions**
- **Each question carries 12 marks**

Q1 Explain the fundamental steps in Image Processing. What do you mean by digitization of an image? Illustrate the processes involved in digitization. (CO1)

OR

What are the elements of a digital Image Processing system? Illustrate the relationships between the pixels. (CO1)

Q2 a) Define point processing and mask processing. (CO2)
b) Explain the filter functions for smoothing filers in the spatial and frequency domain.

OR

a) Define histogram processing for histogram equalization and histogram specification. (CO2)
b) Explain the filter functions for sharpening filters in spatial and frequency domain.

Q3 a) Differentiate between image enhancement and image restoration. (CO3)
b) Explain inverse filtering and homomorphic filters.

OR

a) Define tri-chromatic coefficients. (CO3)
b) Explain the ways in which the degradation function can be calculated for restoring the image.

Q4 Why we need to compress images? Explain lossless Predictive Coding with example. (CO4)

OR

Define coding redundancy. Explain Lossy Transform Based Coding. (CO4)

Q5 a) Differentiate between edge detection using first order and second order derivatives. (CO4)
b) How thresholding is used for segmentation?

OR

Explain region growing and region merging approach for image segmentation. (CO4)