

School of Computing Science and Engineering

B.Tech CSE
ETE - Jun 2023

Time : 3 Hours

Marks : 100

Sem IV - E2UB401B / CSAI2040

Computer Vision

Your answer should be specific to the question asked

Draw neat labeled diagrams wherever necessary

1. Discuss the effect of smoothing on an image. How it is done? K2 CO2 (5)
2. Explain High Boost filter and its usage. K3 CO3 (5)
3. What are some possible uses of histograms for image segmentation, and how can they be used? K1 CO1 (5)
4. What do you understand by Histogram equalization? Also, explain the Histograms corresponding to four basic image types. (Dark, Bright, Low-Contrast, and High Contrast) K4 CO4 (10)

OR

- Explain image smoothing using ideal lowpass filters and Butterworth lowpass filters. K4 CO4 (10)
5. How will image smoothing and sharpening methods be useful during image enhancement process? K2 CO2 (10)
 6. Explain the three fundamental steps performed in edge detection. Why is edge detection useful? K4 CO4 (10)
 7. Explain homomorphic filtering? What are the advantages of homomorphic filtering? K1 CO1 (10)
 8. Explain the use of first derivative for image enhancement by taking a 3*3 region of image using the magnitude of the gradient. K3 CO3 (15)
 9. What is an active contour model? How contours are represented using this model? K4 CO4 (15)

OR

- How an edge of the image is detected? Discuss any edge detection algorithm for detecting an edge of the following image. K4 CO4 (15)
10. Show that subtracting the Laplacian from an image is proportional to unsharp masking. Use the definition for the Laplacian in the discrete case? K3 CO3 (15)