

(3 Hours)

Total Marks: 80

N.B.: (1) Question No.1 is compulsory.

(2) Attempt any three questions from the remaining five questions.

(3) Make suitable assumptions wherever necessary but justify your assumptions

Q1.

- a. How is line detected? Explain using the operators and also demonstrate by taking a set of points how edge linking can be done (10)
- b. Consider a color image of 1024x1024. If this image is transmitted across a channel of 2 Mbps, what will be the transmission time? (10)

Q2.

- a. Explain 4, 8 and m connectivity between pixels (10)
- b. Explain why the discrete histogram equalization technique does not, in general, yield a flat histogram. (10)

Q3.

- a. Find the DFT of the image (10)

$f(x,y)=$

1	2	3	2
2	3	4	3
1	2	3	2
2	3	4	3

Show the Magnitude and phase spectra

- b. Explain Homomorphic filtering in detail (10)

Q4.

- a. Derive the contrast stretching transformation function (10)
- b. What is morphology? Describe various morphological operations in detail. (10)

Q5.

- a. Give a single intensity transformation function for spreading the intensities of an image so that lowest intensity is 0 and the highest is L-1. (10)

Q6. Write Short Note: (Any 4)

(20)

- a. Content Based Image Retrieval (CBIR)
- b. Region Splitting and Merging
- c. Filters in Spatial Domain
- d. Ideal High Pass Filter
- e. Lossy Compression Techniques

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