Paper / Subject Code: 42605 / Elective I : 1) Image Processing

Wednesday, May 29, 2019   10:30 am - 01:30 pm   1T01217 - B.E.(INFORMATION TECHNOLOGY)
(Sem VII) (CBSGS) / 42605 - Elective I : 1) Image Processing   69600

(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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