10/12/2024 EXTC SEM-VI C SCHEME IPMV QP CODE: 10067051

Duration: 3hrs **[Max Marks: 80]**

N.B.: (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

1 Attempt any **FIVE** [20]

a Justify Laplacian is a good edge detector [4]

b Explain the basic steps in image Processing [4]

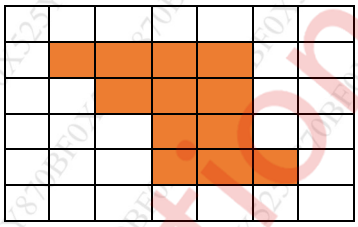
c Justify Median filter is the best filter for removal of salt-&-pepper noise [4]

d Define morphological opening and closing of binary image with mathematical expression [4]

e Compute De, D4 distance between pixels p and q for p{0, 1} and q{1,2} [4]

f Explain how wavelet transform stands different than other transforms in frequency domain processing of a digital image. State it's utility. [4]

2 a Segment the given arbitrary shape by quadtree approach [10]



b Why Fourier transform and frequency domain tools are so useful for image enhancement? With the help of block diagram explain the basic of filtering in frequency domain. Give the reason of shifting. [10]

3 a A 3 bit image has following gray level distribution. Determine grey level distribution for the output image using equalization procedure. [10]

Grey level	G_0	G_1	G_2	G_3	G_4	G_5	G_6	G_7
No. of Pixel	400	700	1350	2500	3000	1500	550	0

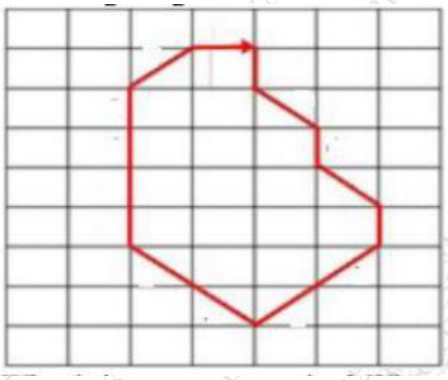
b Explain in detail the Fourier descriptors. Where are they used? Explain with an example. [10]

4 a Given F= [10]

2	3	5	10
4	6	4	10
7	1	3	3

Determine the output image using Power law transformation $s=(r)^2$

b Write short note on i) K means algorithm ii) Support Vector Machine [10]

5 a  [10]

Find chain code and shape number using 8 code connectivity for the above Image. Arrow shows the starting point for chain code

b Explain the concept of thresholding for segmentation [10]

6 a Explain image degradation model and inverse filtering [10]

b Write short note on point processing [10]

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