sem- VII / Image & Video Processing. / EXTC (CBGS) / 13-05-16

QP Code : 31268

(3 Hours) [Total Marks : 80

N.B. : (1) **Q.1** is compulsory.
(2) Solve any 3 questions from remaining 6 questions.
(3) Assume suitable data if it is required.

1. Justify/Contradict the following statements. 20
   (1) K.L. Transform is called PCA.
   (2) Continuous image histogram can be perfectly equalized but it may not be so for digital image.
   (3) Laplacian is good edge detector.
   (4) Mixed Adjutancy is introduced to eliminate the ambiguities that often arise when 8 adjacencyis used.

2. (a) Write difference between : Histogram Equalization and Contrast stretching. 6
   (b) Discuss RGB and HSI color models. 6
   (c) Given histogram A and B. Modify histogram of A as given by histogram of B 8

Image A

Grey Level	0	1	2	3	4	5	6	7
No of Pixels	750	1023	850	656	329	245	122	81

Image B

Grey Level	0	1	2	3	4	5	6	7
No of Pixels	0	0	0	614	819	1230	819	614

3. (a) Using Graph Theoretical approach, find the edge corresponding to the minimum cost path 10

5 6 7

3 4 2

0 1 7

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(b) Find DCT of the following image 10

2	4	4	2
4	6	8	3
2	8	10	4
3	8	6	2

4. (a) Given different edge detection masks along with the values. 5
(b) Explain bit plane Slicing with application. 5
(c) Given a following image segment, use the hit or miss transform to find the top edge of the square. 10

0	0	0	0	0	0	0
0	1	1	1	1	1	0
0	1	1	1	1	1	0
0	1	1	1	1	1	0
0	1	1	1	1	1	0
0	0	0	0	0	0	0

Use two structuring elements shown below:

B1 =

0	0	0
0	1	0
0	1	0

B2 =

0	1	0
0	0	0
0	0	0

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5. (a) Show that : Original image - LPF image = HPF image 6
   (b) Explain Image Restoration model. 7
   (c) Perform opening and closing operation on the following image. Use structuring element. 7

1	1	1

1	0	0	0	0
0	1	0	0	0
0	0	1	0	0
0	0	0	1	0
0	0	0	0	1

6. Write short note on 20
   (a) Image Enhancement in Frequency domain
   (b) Weiner Filter
   (c) Exhaustive block matching Algorithm