

Principles of Imaging processing

Con. 3632-11.

(REVISED COURSE)

3/6/11

RK-3573

(3 Hours)

[ Total Marks : 100

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

(2) Attempt any four questions from remaining six questions.

(3) Figures to the right indicating full marks.

Pri. of Imaging processing

Sem-VII

03/06/11.

BEL (Biomed)

- Q1. A) Run Length Encoding is a loss-less compression technique explain. 05
- B) HIT-or MISS Transformation 05
- C) Consider an observer looking at a lamppost which is at a distance of 60 meters. If the height of the lamp post is 12 meter, find the size of the image formed in the retina. 05
- D) Explain the need of a LOG operator. 05

Q2A) Explain Opening & Closing operations with suitable examples. 10

B) Explain the Slant transform in detail 10

Q3A) Explain the four properties of the Fourier transform. Explain the relevance of each in image processing. 10

B) Explain in detail Homomorphic Filtering 05

C) If  $x = \{3\ 2\ 3\ 4\ 5\ 6\ 4\}$  and  $w = \{-1\ 0\ 1\}$ , perform median filtering. 05

Q4A) Explain any three point processing techniques and give their applications. 10

B) Perform grey level slicing on the given image. Let  $r1=2$  and  $r2=6$ . Draw the modified image using with background and without background transformations. 10

2	2	1	2	1
2	3	4	5	2
2	5	6	7	0
6	2	6	5	1
3	0	2	2	1

Q5A) Explain in detail Region based Segmentation 10

B) Describe in detail how Hough transform is used for boundary shape detection 10

Q6A) Generate the Huffman codes for the symbols given below 10

Symbol	A1	A2	A3	A4	A5	A6
Probability	0.1	0.4	0.06	0.1	0.04	0.3

B) Explain in detail the transform coding. 10

Q7. Write short notes on :

- A) Connectivity of Pixels
- B) The LZW Compression
- C) Feature Extraction
- D) Image File Formats. 20