JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST 2 EXAMINATION - OCTOBER 2018 Nishant Jain

B.Tech Semester (VII)

COURSE CODE: 18B1WEC734 MAX. MARKS: 25

COURSE NAME: Medical Image Processing

COURSE CREDITS: 03 MAX. TIME: 1.5 HRS

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***Note:*** *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Marks are indicated against each question in square brackets.*

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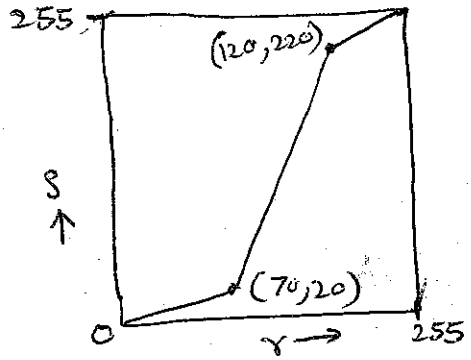
1. Implement the following transformation on any input image in MATLAB.




r = input pixel intensities
S = output pixel intensities

[4] CO2

2. For the following image, I, evaluate the averaged image and median image.

$$I = \begin{bmatrix} 20 & 10 & 20 & 10 \\ 15 & 21 & 200 & 10 \\ 3 & 12 & 30 & 20 \\ 10 & 2 & 40 & 5 \end{bmatrix}$$

[4] CO2

3. Write the 3X3 template for the following ~~filter~~ filters:

a. Robert Filter

b. Sobel Filter

c. Prewitt Filter

d. Average Filter

e.Laplacian Filter

[3] CO3

4. Write a MATLAB code to detect isolated points in an image.

[3] CO3

5. What do you understand by edge linking in image processing. Describe its types.

[3] CO3

6. How Hough transform is used to detect location of edges in an edged image?

[4] CO3

7. Design a filter that can be used to detect line of 1 pixel thick and oriented at an angle of:

(a) $45^{o}$ (b) $-45^{o}$ (c) $90^{o}$ (d) $0^{o}$

[4] CO3