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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -2 EXAMINATION- October 2017
B.Tech (Biotechnology) VIIth Semester

COURSE CODE: 11B2WBT852 MAX. MARKS: **25**
COURSE NAME: Computational Biomedical Image Analysis
COURSE CREDITS: **3** MAX. TIME: **1.5 Hrs**

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q1. Discuss the differences between image enhancement and image restoration. (4)

Q2. Give the template for the following filters:

a. Average Filter

b. Laplacian Filter (2)

Q3. Prepare a 5X5 image with value 10 in the center 3X3 region and value zero in the remainder of the image. Calculate the results of application of 3X3 Laplacian operator on the image. (4)

Q4. Give masks (or filters or templates) for any three edge detection techniques. (3)

Q5. Explain any two noise model PDFs commonly used in image processing. (4)

Q6. Consider an Image, I given below:

$$I = \begin{matrix} 2 & 5 & 1 & 2 \\ 2 & 4 & 6 & 3 \\ 5 & 5 & 5 & 1 \\ 4 & 2 & 1 & 2 \end{matrix}$$

(a). Convert image I to binary image using threshold value as 3.

(b) Draw the histogram of an image, I. (4)

Q7. Considering an image, I given below:

$$I = \begin{matrix} 2 & 5 & 1 & 2 \\ 2 & 4 & 6 & 3 \\ 5 & 5 & 5 & 1 \\ 4 & 2 & 1 & 2 \end{matrix}$$

(a). Implement 3X3 average filter on I.

(b) Implement 3X3 median filter on I. (4)