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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION - December-2018

B.Tech VII$^{th}$ Semester

COURSE CODE: 10B1WCI737 MAX. MARKS: 35

COURSE NAME: IMAGE PROCESSING TECHNIQUES

COURSE CREDITS: 03 MAX. TIME: Two Hours

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



1) a) Differentiate between the Fourier transform and the wavelets. [2]

b) Explain the Haar Transform and obtain Haar transformation matrix for N = 4. [3]

2) a) When you enter a dark theater on a bright day, it takes an appreciable amount of time before you see well enough to find an empty seat. Which of the visual process is at play in this situation? Explain the process in detail.

[3]

b) Give a single intensity transformation function for spreading the intensities of an image so that the lowest intensity is 0 and highest is L-1 in a gray scale image where L defines the number of discrete gray levels in the image. [3]

3) Write a short note on the following:

a) Huffman coding

b) JBIG2 compression

c) Closing morphological operation

[3*3]

4) a) Explain the various steps involved in frequency domain filtering. [2]

b) Explain the various selective filters used in the frequency domain along with their application of use. [3]

5) Explain the CMYK color model and how it can be converted into RGB color model? Explain the use of CMYK color model.

[3]

6) A binary image contains straight lines oriented horizontally, vertically, at 45 degree and at -45 degree. Briefly describe the procedure to detect them.

[3]

7) Detail the automated imaging model you will use to extract the number and types of wheat grains with variety of defects in them.

[4]