JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2024

B.Tech-VIII Semester (CSE/IT/CE)

COURSE CODE(CREDITS): 21B1WEC731 (3)   MAX. MARKS: 15

COURSE NAME: Digital Image Processing using Python

COURSE INSTRUCTORS:Dr. Nishant Jain   MAX. TIME: 1 Hour

Note: (a)All questions are compulsory.

(b)Marks are indicated against each question in square brackets.

(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q1. A colour (RGB) image of size 50 X 100 is represented by 3 bits. Determine the number of pixels present in the image and the total number of bits used in the image. Give an explanation for your answer.   [2]CO1

Q2.Consider the size of an image as 50 x 100. Explain the difference between the Colour image, Grayscale image, and Binary image in terms of the following:

    a. Size of the matrix representing the images.
    b. Considering the relevant number of bits, mention the following:
        i. Total Number of possible values of a pixel.
        ii. Total Number of visual colours present in the image.
        iii. Maximum value a pixel can have.
    c. Information loss in the images, if any, if all the three images belong to the same object.

[4]CO1

Q3.Explain the positive and negative impact of reducing the following in the images:
    a. Spatial Resolution
    b. Intensity Resolution.

[3]CO1

Q4.Explain why the opinion of a medical practitioner is required before applying any image enhancement method on the medical image.

[2]CO1

Q5.Write a python script to change the format of an image from jpg to png.

[2]CO1

Q6.Write a python script to check if the camera connected with the system is in working mode or not. Display the status of the camera with relevant messages for the user.

[2]CO1