19P455 (Pages: 2) Name: ……..…...

Reg. No……..

FOURTH SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2021

(CBCSS - PG)

CC19P CSS4 E04a - DIGITAL IMAGE PROCESSING

(Computer Science - Elective Course)

(2019 Admission - Regular)

Time: Three Hours Maximum: 30 Weightage

PART A

Answer any ***four*** questions. Each question carries 2 weightage.

1. Explain the concept of sampling and quantization with an example.
2. What is meant by image transformation? Explain its needs in digital image processing.
3. What is thresholding? Describe various thresholding based image segmentation methods.
4. Write a note on frequency domain filters and its types.
5. Derive the basis function of Walsh transform.
6. Define image compression. Explain different image compression standards.
7. What is histogram of an image? Draw histogram of basic image types. Also discuss how histogram is useful for image enhancement?

(4 × 2 = 8 Weightage)

PART B

Answer any ***four*** questions. Each question carries 3 weightage.

8. Write a note on edge detection.
9. Determine the Huffman code designing procedure for the following data. Compute the average length of the generated Huffman code.

A	0.30
B	0.30
C	0.13
D	0.12
E	0.10
F	0.05

10. Explain the various sharpening filters used in spatial domain.
11. What is a digital image? What are the various types of images? How to represent a digital image?

12. What is histogram equalization? Explain with a suitable example.
13. Describe the concept and properties of Discrete Fourier Transform.
14. Explain different types of Noise models.

(4 × 3 = 12 Weightage)

PART C

Answer any ***two*** questions. Each question carries 5 weightage.

15. Explain the basic model of image restoration process. Also describe different noise models.
16. Describe image enhancement in detail.
17. What are the different techniques for lossless compression? Explain.
18. Explain the steps in digital image processing in detail.

(2 × 5 = 10 Weightage)

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