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Name.....

Reg. No.....

**FOURTH SEMESTER M.Sc. DEGREE (REGULAR) EXAMINATION  
MARCH 2021**

(CBCSS)

Computer Science

CSS 4E 04 A—DIGITAL IMAGE PROCESSING

(2019 Admissions)

Time : Three Hours

Maximum : 30 Weightage

**General Instructions**

1. *In cases where choices are provided, students can attend all questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

**Part A**

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

1. Briefly explain about elements of visual perception.
2. What do you mean by histogram equalization ?
3. Define fast Walsh transform.
4. Specify the properties of 2D Fourier transform.
5. Name the different types of derivative filters.
6. Give the difference between Enhancement and Restoration.
7. What is the need for Compression ?

(4 × 2 = 8 weightage)

**Part B**

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

8. Describe sampling and quantization.
9. How does Histogram equalization achieve filtering ?
10. Compare and contrast low pass and high pass filters.

**Turn over**

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11. Discuss about thresholding.
12. Differentiate between splitting and merging used in image segmentation.
13. Explain arithmetic coding and run length coding.
14. What are the image compression standards? Explain.

(4 × 3 = 12 weightage)

**Part C**

*Answer any two questions.*

*Each question carries 5 weightage.*

15. With neat sketch, explain the components of image processing system.
16. Write about homomorphic filtering in spatial and frequency domain.
17. What are the different steps of Canny Edge detection algorithm? Briefly describe the way gradient is computed.
18. Explain the concept of Huffman coding with a suitable example. Also explain how does it achieve compression?

(2 × 5 = 10 weightage)