

B-sc. comp sci (sem-VI) dt 9/12/2024

[Time:2.30 Hrs]

[ Marks:75 ]

- N.B:
1. All question are compulsory.
  2. Figures to the right indicate full marks.

Q.1 Attempt any four of the following. 20

- A Explain properties of DFT.
- B Explain Fourier transform and its properties
- C What is main difference between Walsh and Hadamard transform?
- D Discuss applications of Circular Convolution.
- E Explain 2D systems and its classifications.
- F Discuss applications of image processing

Q.2 Attempt any four of the following. 20

- A Explain the formation of colour
- B Describe the human perception of colour.
- C Write a note on colour image quantization.
- D Explain Quasi- Euclidean distance transform.
- E What is Erosion?
- F Describe various zooming operations.

Q.3 Attempt any four of the following. 20

- A What is content-based image retrieval?
- B What is an 'edge' in an image? On what mathematical operation are the two basic approaches for edge detection based on?
- C Describe various edge detection methods.
- D Describe Redundancy in images
- E Explain Transform-based compression
- F Explain Shannon's source coding theorem

**Q.4** Attempt any three of the following.

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- A Compare the Canny edge detector with the Laplacian of Gaussian edge detector.
- B Describe Rate-distortion theory
- C What is Run-length coding? Explain along with its types
- D Explain different element of image processing.
- E Explain sampling and quantization.
- F Explain 2D image sampling.

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