

[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 2D image sampling.
- B. Discuss applications of Circular Convolution
- C. What is main difference between Walsh and Hadamard transform?
- D. What are advantages of Walsh over Fourier transform?
- E. Describe Median Filter.
- F. Write a note on Homomorphic filter.

**Q.2 Attempt any four of the following: 20**

- A. Explain the mathematical morphology.
- B. What do you mean by structuring elements?
- C. Explain the formation of colour.
- D. Describe the human perception of colour.
- E. What is content-based image retrieval?
- F. Describe various edge detection methods.

**Q.3 Attempt any four of the following: 20**

- A. Explain the need for image compression.
- B. Describe Redundancy in images.
- C. Explain Image-compression scheme
- D. Why do we need image compression?
- E. What is Information Theory?
- F. What is Huffman coding?

**Q.4 Attempt any three of the following: 15**

- A. Discuss applications of image processing.
- B. Why we need image transforms
- C. Write a note on Correlation.
- D. Describe Median Filter.
- E. What is Arithmetic Coding?
- F. What is transform-based compression?

**\*\*\*\*\*END\*\*\*\*\***