



- Notes :
1. Solve **any five** questions.
 2. All questions carry equal marks.
 3. Due credit will be given to neatness and adequate dimensions.
 4. Assume suitable data wherever necessary.

1. a) Describe the fundamental steps in image processing. 7
- b) Explain sampling and quantization. 7

OR

2. a) Explain various spatial domain smoothing filters used for Image Enhancement. 7
- b) Grey level histogram of an image is given below. 7

Grey level	0	1	2	3	4	5	6	7
Frequency	123	78	281	417	639	1054	816	688

Compute the grey level histogram of enhanced output image.

3. a) Explain the Golomb coding technique of image compression. 7
- b) Describe the LZW coding technique for image compression. 7
4. a) Explain frequency domain sharpening filters in detail. 7
- b) What are morphological watersheds? Explain watershed segmentation algorithm. 7
5. a) Explain segmentation using point, fine and edge detection procedure. 7
- b) Explain the canny edge detector technique for image segmentation. 7
6. a) Describe boundary extraction morphological algorithm. 7
- b) Explain fast wavelet transform. 7
7. a) Show that the Laplacian operator is invariant to rotation. 7
- b) Explain how neural networks are used in object recognition. 7
8. a) Explain in detail Fourier descriptors. Where are they used? Explain with an example. 6
- b) Write short note on- 8
 - i) Moments
 - ii) Polynomial approximations
