Duration: 3hrs **[Max Marks: 80]**

N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) Assume suitable data, if required and state it clearly.

1 Attempt any FOUR **[20]**

A Differentiate between 8 connectivity and 'm' connectivity.

B Explain how point processing technique differ from mask processing technique

C What do you mean by point, line and edge in an image? Name some techniques to detect them.

D Justify/Contradict the statement "Run length coding is lossless compression"

E Write different properties of DCT. Explain any one in detail.

2 A Apply histogram equalization to the given following image and show the histogram equalized image. **[10]**

0	1	1	3	4
7	2	5	5	7
6	3	2	1	1
1	4	4	2	1

B Explain Huffman coding algorithm. **[10]**

3 A Explain Gray level slicing and contrast stretching with examples. **[10]**

B Write a short note on vector quantization. **[10]**

4 A Write the steps of filtering in frequency domain. **[10]**

B Apply Discrete Walsh transform to the following sequence: **[10]**

$f(x)=\{1, 2, 0, 3\}$

5 A Draw the block diagram of components of image processing and explain it. **[10]**

B Write a short note on region based segmentation. **[10]**

6 A Give the difference between chain code and shape number with an example. **[10]**

B Explain dilation, erosion, opening and closing morphological operations **[10]**