DIGITAL IMAGE PROCESSING

UNIT – 1

1. Define Image.

2. Compute the Euclidean Distance (D1), City-block Distance (D2) and Chessboard distance (D3) for points p and q, where p and q be (5, 2) and (1, 5) respectively. Give answer in the form (D1, D2, D3).

3. Define: Dynamic Range, Brightness, Gray level, Hue, saturation, Resolution, pixel

4 Describe the fundamental steps in image processing?

5. Find the number of bits required to store a 256 X 256 image with 32 gray levels.

6. Explain the basic Elements of digital image processing.

7. Describe the basic relationship between the pixels • Neighbours of a pixel • Adjacency, Connectivity, Regions and Boundaries • Distance measures

8. Examples on finding Connectivity (4,8, m), distances, adjancy.

9. Explain sampling and quantization.

10. Write a note on Neighbours of a pixel, Adjacency, Connectivity, Regions and Boundaries.

11. Explain in brief the types of quantizers.

UNIT – 2

1. Differentiate linear spatial filter and non-linear spatial filter.

2. Explain Histogram processing, Histrogram Equalization.

3. Explain the types of Spatial Filtering.

4. Write a note on: Point operation, mask operation, global operation.

5. Perform Histrogram Equalization of given image

$$\begin{bmatrix} 4 & 4 & 4 & 4 & 4 \\ 3 & 4 & 5 & 4 & 3 \\ 3 & 5 & 5 & 5 & 3 \\ 3 & 4 & 5 & 4 & 3 \\ 4 & 4 & 4 & 4 & 4 \end{bmatrix}$$

6. Explain the Non-Linear gray level Transformations.

7. Explain in brief types of smoothening filters.

8. Explain in brief types of sharpening filters 12. Compute median of following image using 3x3 mask.

$$\begin{bmatrix} 18 & 22 & 33 & 25 & 32 & 24 \\ 34 & 128 & 24 & 172 & 26 & 23 \\ 22 & 19 & 32 & 31 & 28 & 26 \end{bmatrix}$$