10. (a) Explain Edge Detecting Technique to detect the discontinuities. 6

(b) Write a short note on Dilation and Erosion. 7

11. (a) With neat diagram, explain the model of restoration process. 6

(b) List and explain common PDFs found in image processing applications. 7

OR

12. (a) Write a short note on Inverse Filtering. 6

(b) List any five applications of image processing and explain any one. 7

Faculty of Engineering & Technology
Seventh Semester B.E. (Electronics Engg.)
(C.B.S.) Examination
ELECTIVE–I : DIGITAL IMAGE PROCESSING

Time—Three Hours] [Maximum Marks—80

INSTRUCTIONS TO CANDIDATES

(1) All questions carry marks as indicated.

(2) Solve Question No. **1 OR** Questions No. **2**.

(3) Solve Question No. **3 OR** Questions No. **4**.

(4) Solve Question No. **5 OR** Questions No. **6**.

(5) Solve Question No. **7 OR** Questions No. **8**.

(6) Solve Question No. **9 OR** Questions No. **10**.

(7) Solve Question No. **11 OR** Questions No. **12**.

(8) Assume suitable data wherever necessary.

(9) Illustrate your answers wherever necessary with the help of neat sketches.

1. (a) Explain the fundamental steps in Digital Image Processing. 7

(b) Write a short note on Image Sampling and Quantisation. 7

OR

2. (a) Write a short notes on spatial resolution and gray level resolution. 7

(b) Consider the image segment shown :

(i) Let V = {0, 1} and compute the lengths of the shortest 4–, 8– and m-path between p and q. If a particular path does not exist between these two points, explain why ?

(ii) Repeat for V = {1, 2}

3 1 2 1 (q)

2 2 0 2

1 2 1 1

(p) 1 0 1 2. 7

3. (a) Explain basic gray level transformation. 6

(b) What is Histogram Equalisation ? Discuss in detail. 7

OR

4. (a) Describe the RGB. CMY Color Model. 7

(b) Explain Pseudocolor Image Processing. 6

5. (a) Explain 2-dimensional DFT. 7

(b) Describe K-L transform. 6

OR

6. (a) Write a short note on Haar Transform. 7

(b) Write a short note on Wavelet Transform. 6

7. (a) Explain coding redundancy, interpixel and psychovisual redundancy. 8

(b) Explain image compression model. 6

OR

8. (a) Write short notes on :

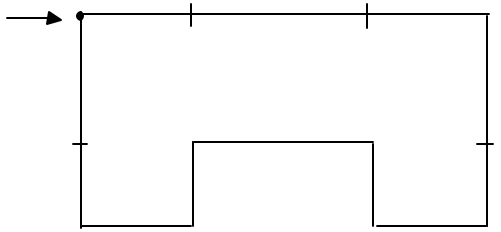
(i) Fractals

(ii) JPEG 8

(b) Explain Lossy Predictive Coding. 6

9. (a) Explain Gradient and Laplacian operators. 7

(b) What is the order of the shape number for the figure shown ? Obtain the shape number.



6

OR