Digital Image Processing Question Bank

PUT- 2013

UNIT –I

1) What are the different elements of DIP system .Explain? (10)

2) Explain with example a) Neighbors of pixel b) Connectivity (10)

3) How many minutes would it take to transmit a 1024 * 1024 image with 256 gray levels using a 56k band modem? Explain it. (10)

4) What do you mean sampling? State Explain this into image processing? (10)

5) What are the different transforms used in DIP. Explain the most advantageous one detail. (10)

6) Explain resolution with image processing .Also write on spatial level resolution? (10)

7) Explain with block diagram, fundamental steps in digital image processing. (10)

8) What are different operations used in DIP? Describe each with example. (10)

9) Give the condition (s) which the D_4 distance between two point p and q is equal to the shortest 4 –path between these points .Is this path unique ? Explain in detail. (10)

10) Write note on image sensing and acquisition. (10)

UNIT II

1) Explain the process of image smoothing using any one. (10)

2) What are different enhancement operations? Explain any one with example. (10)

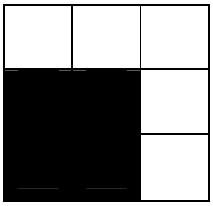
3) What effect would setting to zero the lower order bit planes have on histogram of an image in general ? what would be the effect of histogram if we set to zero the higher order bit planes. (10)

4) Define Histogram processing and explain the basic gray level transformation. (10)

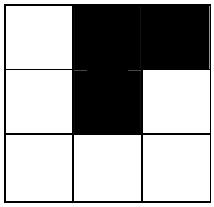
5) Explain the use of first and second order derivative for image processing. (10)

6) For the images A and B shown below perform the following logic operations. (10)

1) A.B 2) A + B 3) A ⊕ B 4) $\bar{A}$ 5) $\bar{A}$ .B



A



B

7) Explain enhancement of image using Arithmetic and logical operation (10)

8) What are the conditions to convert the butter worth low pass filter

$H(u,v)=1/1+ [D(u,v)/Do]^{2n}$ to an ideal low pass filter . (10)

9) Write a note on :
   i) Sharpening spatial filters.
   ii) Smoothing spatial filters. (10)

10) What is histogram equalization? Explain any one detail. (10)

UNIT III

1) Discuss on Error Free compression Model? (10)
2) Explain different Error Free compression Codings? (10)
3) Determine which bit, if any, is in error in the hamming encoded message 1100111, 1100110 and 1100010.what are the decoded values? (10)
4) What are the different coding techniques used in DIP? Explain any one (10)
5) Explain Lossy Predictive coding Model? (10)
6) Explain any image compression process in detail? (10)
8) Discuss digital image compression with three basic data redundancies (10)
9) Explain the Huffman Coding in brief with example. (10)
10) Explain LZW coding technique. (10)

UNIT IV

1) Explain the spatial transformation in DIP (10)
2) Write in detail gray level interpolation based on the nearest neighbor concept. (10)
3) What are the different mean filters used for restoration? Explain any one. (10)
4) Explain the color conversion with appropriate method in detail. (10)
5) Explain block diagram of color image enhancement in brief. (10)
6) Discuss in detail geometric transformation in terms of DIP. (10)
7) Explain in detail a model of image degradation process. (10)
8) Explain Pseudo color image processing. (10)
9) Write a detailed explanation of spatial transformation in DIP with the help of suitable example. (10)
10) Explain color model with respect to following points. (10)
   i) RGB Color model ii) HSI Color model.

UNIT V

1) Explain global processing via Hough transform. (10)
2) What are the gradient operation? What are the various operators used for image segmentation based on edge detection? Explain (10)
3) Write note on image segmentation in detail. (10)
4) Discuss different three detection of discontinuities using 3x3 mask. (10)
5) Does the zero-crossing method for edge finding always result in edges that are close to contours? Give reason. (10)
6) What do you understand by thresholding the image? Explain in brief. (10)
7) Explain region growing and splitting (10)
8) Explain Various boundary descriptors. (10)
9) Explain point segmentation, Line & Edge segmentation detection. (10)
10) What are dilation and erosion operation in morphological operation? Explain with examples. (10)