Digital Image Processing Question Bank

UNIT –I

April/May 2009 (Refer Solution)

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)

December 2009

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

2) What are the different transforms used in DIP? Explain the most advantageous one detail?

(10)

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

April/May 2010

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

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

3) 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)

December 2011

1) What are different statistical properties? Explain one with example.   (10)

2) Develop an algorithm for converting one pixel thick 8 path to 4 path.   (10)

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

UNIT II

April/May 2009(Refer Solution)

1) Develop a procedure for computing the median of an n*n neighborhood .Propose a technique for updating the median as the center of the neighborhood is moved from pixel to pixel .(10)

2) Under what conditions does the Butterworth low pass filter $H(u,v)=1/1+ [D(u,v)/Do]^{2n}$ becomes an ideal low pass filter ? Explain   (10)

3) Explain the discrete histogram equalization technique?   (10)

December 2009

1) Explain process of image smoothing using Median filtering?   (10)

2) How first and second derivative enhance the image ? Explain which is more enhance?   (10)

3)An image segment is show below .let V be the set of gray level values used to define connectivity in the image .Compute D4 ,D8 and Dm distances between pixel p & q for   (10)

a) v = { 0,1}   b) v = {1,2}

3	1	2	1	**q**
2	2	0	2	
1	2	1	1	
p 1	0	1	2	

April/May 2010

1) Discuss the limiting effects of repeatedly applying a 3x3 low pass spatial filter to a digital image .you may ignore border effects.   (10)

2) Show the high pass filtering image in frequency domain can be obtain by using the method of subtracting a low pass filtering image from original.   (10)

3) Explain why the discrete histogram equalization technique will not in general yield flat histogram.   (10)

December 2011

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)

UNIT III

April/May 2009(Refer Solution)

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)

December 2009

1) What are the different coding techniques used in DIP ? Explain any one   (10)

2) Explain Lossy Predictive coding Model?   (10)

3) Explain any image compression process in detail?   (10)

April/May 2010

1) Discuss digital image compression with three basic data redundancies   (10)

2) Explain the Huffman Coding in brief with example.   (10)

3) Use hamming (7,4) code to code the IGS quantized data given in table below   (10)

Pixel	Gray Level	Sum	IGS Code
i-1	NA	0000 0000	NA
i	0110 1100	0110 1100	0110
i+1	1000 1011	1001 0111	1001
i+2	1000 0111	1000 1110	1000
i+3	1111 0100	1111 0100	1111

December 2011

1) Explain JPEG baseline coder and decoder.   (10)

2) The following six symbols and their probabilities are given in tabular form. Generate Huffman code for them.

   Symbol: a1   a2   a3   a4   a5   a6

   Probability: 0.1 0.4 0.06 0.1 0.04 0.3   (10)

3) Write note on image compression standards.   (10)

UNIT IV

April/May 2009 (Refer Solution)

1) Discuss the Color Models   (10)

   a) R.G.B b) H.S.I

2) Explain the spatial transformation in DIP   (10)

3) Write in detail gray level interpolation based on the nearest neighbor concept.   (10)

December 2009

1) What are the different mean filters used for restoration? Explain any one.   (10)

2) Write note on   a) RGB   b) HSI   (10)

3) Explain the color conversion with appropriate method in detail.   (10)

April/May 2010

1) Explain block diagram of color image enhancement in brief.   (10)

2) Discuss in detail geometric transformation in terms of DIP.   (10)

3) Explain in detail a model of image degradation process.   (10)

December 2011

1) What are different image restoration methods? Explain least square restoration in detail.   (10)

2) Explain Pseudo color image processing.   (10)

3) Explain the followings with reference to geometric transformation: (10)

A) Rotation

B) Scaling

C) Translation

UNIT V

April/May 2009 (Refer Solution)

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) What do you understand by dialation and erosion operation in morphological operation? Explain in brief?   (10)

December 2009

1) Explain global processing using Hough transform.   (10)

2) What are the different techniques for detection of discontinuous? Explain advantageous one only.   (10)

3) Write note on image segmentation in detail.   (10)

April/May 2010

1) Discuss different three detection of discontinuities using 3x3 mask.   (10)

2) Does the zero-crossing method for edge finding always result in edges that are close to contours? Give reason.   (10)

3) What do you understand by thresholding the image? Explain in brief.   (10)

December 2011

1) Explain region growing and splitting   (10)

2) Explain Various boundary descriptors.   (10)

3) Explain how signature is a 1 dimensional representation of boundary with suitable example.   (10)