Code No: 07A70505 **R07** **Set No. 2**

IV B.Tech I Semester Examinations,MAY 2011
IMAGE PROCESSING AND PATTERN RECOGNITION
Bio-Medical Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain Bayes classified decision function with an example. [16]
2. Write short notes on:
   (a) Image Negatives.
   (b) Log Transformation.
   (c) Power-law Transformation. [5+5+6]
3. What is a gradient? Explain the gradient approach with an example. [16]
4. Explain linear decision functions with relevant examples. [16]
5. What is the use of processing an image? Explain various applications of Image Processing. [16]
6. Explain about the Syntatic Recognition of trees. [16]
7. (a) What are Moire Patterns? Discuss their effect.
   (b) Discuss the various geometrical transformations of the image function. [8+8]
8. Discuss the various redundancies encountered in image compression and offer solution in removing them. [16]

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Code No: 07A70505 **R07** **Set No. 4**

IV B.Tech I Semester Examinations,MAY 2011
IMAGE PROCESSING AND PATTERN RECOGNITION
Bio-Medical Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain the basic elements of Digital image processing. [16]
2. Explain the trainable pattern classifiers. [16]
3. Explain the increment correction algorithm for trainable pattern classifier using stochasitc approach and derive the conditions for decision function. [16]
4. (a) Explain the transformation used to rotating a point in 3-D plane.
   (b) Explain about the basic relationships between pixels. [8+8]
5. Explain Gradient descent algorithm with an example. [16]
6. What is clustering? Explain clustering concepts with an example. [16]
7. (a) What are histogram statistics?
   (b) Explain the use of histogram statistics for image enhancement. [8+8]
8. (a) How do you detect discontinuities in an image.
   (b) Explain indetail the threshold selection based on boundary characteristics. [6+10]

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Code No: 07A70505 **R07** **Set No. 1**

IV B.Tech I Semester Examinations,MAY 2011
IMAGE PROCESSING AND PATTERN RECOGNITION
Bio-Medical Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain various image enhancement techniques by point processing. [16]
2. Describe
   (a) Deterministic approach
   (b) Perception approach. [8+8]
3. What are the various applications of pattern recognition? List the advantages. [16]
4. Explain LMSE algorithm with a suitable example. [16]
5. (a) Discuss the Fidelity criteria and error free encoding.
   (b) Explain the channel encoder and decoders. [8+8]
6. Explain about Euclidean distance classifier. [16]
7. (a) Prove any 4 properties of 2D Fourier Transform.
   (b) Determine the kernel coefficients of 2D DCT transfoms for N=8. [8+8]
8. Explain different types of grammars with the help of suitable examples. [16]

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Code No: 07A70505 **R07** **Set No. 3**

IV B.Tech I Semester Examinations,MAY 2011
IMAGE PROCESSING AND PATTERN RECOGNITION
Bio-Medical Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain briefly
   (a) Distance functions
   (b) linear decision functions. [8+8]
2. Write short notes on:
   (a) Image acquisition
   (b) Image processing. [8+8]
3. (a) What are the elements required to acquire digital images ?
   (b) Write brief notes on various types of images. [8+8]
4. (a) Draw the block diagram of image compression model and explain the function of each block.
   (b) Explain about Huffmann coding. [8+8]
5. Two images f(x,y) and g(x,y), have histograms h_f and h_g. Give the conditions under which you can determine the histograms of
   (a) f(x,y) + g(x,y)
   (b) f(x,y) - g(x,y)
   (c) f(x,y) x g(x,y)
   (d) f(x,y) / g(x,y) in terms of h_f and h_g. Explain how to obtain the histogram in each case. [16]
6. Explain how the distance functions are helpful for pattern recognition. [16]
7. What is classification? Explain multi category classification with an example. [16]
8. Explain briefly about delta correction algorithm. [16]

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