R09

Code No: D2508

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech II - Semester Examinations, March/April 2011
IMAGE PROCESSING AND PATTERN RECOGNITION
(SOFTWARE ENGINEERING)

Time: 3hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks

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1. What is meant by Image Enhancement? How it is achieved by Histogram Processing? [12]

2. List the areas in which pattern recognition concept can be applied and explain the techniques applied for two applications clearly. [12]

3. a) Explain in detail the lossy predictive coding and loss less predictive coding techniques with block diagrams.
   b) Explain about Huffman coding with suitable with an example. [12]

4. Distinguish between supervised and unsupervised learning methods. [12]

5. a) Distinguish between Dilation and Erosion.
   b) Explain the Hit or Miss transforms with suitable examples. [12]

6. What are the Pattern Recognition approaches? Give an example for BAYESIAN decision making refers to multi feature classification? [12]

7. Determining the optimal decision boundary between two bivariate normal classes? Consider the two classes are G and $\bar{G}$ are both bivariate normal with prior probabilities are $P(G)=0.8$ and $P(\bar{G})=0.2$. The parameters of the conditional density for class G are $\mu_x = 26,\ \sigma_x = 2,\ \mu_y = 85,\ \sigma_y = 5,\ \rho_{xy} = 0.6$, and the parameters for class $\bar{G}$ are $\mu_x = 22,\ \sigma_x = 3,\ \mu_y = 70,\ \sigma_y = 8,\ \rho_{xy} = 0.5$. [12]

8. Write short notes on the following:
   a) Regional descriptors in Image Processing.
   b) Morphological Segmentation.
   c) K-means algorithm in pattern classification. [12]

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