

IV B.Tech II Semester Supplementary Examinations, April/May 2005
IMAGE PROCESSING
(Electronics & Communication Engineering)

Time: 3 hours

Max Marks: 70

Answer any FIVE Questions
 All Questions carry equal marks

1. (a) Explain in detail about various features used for speech and fingerprint recognition.
 (b) Explain the mathematical model of a simple pattern recognition system in detail.
2. (a) Write a short note on cluster analysis.
 (b) Explain a cluster-seeking algorithm in detail.
3. (a) Distinguish between consistent and inconsistent inequalities.
 (b) Explain the steps involved in preceptorn approach.
4. (a) Explain what do you mean by syntactic pattern recognition.
 (b) Give the productions used in the generation of the sentence "THE BOY RUNS" and draw the corresponding sematic tree.
5. (a) Define baud rate. Generally, transmission is accomplished in packets consisting of a start bit, a byte of information and a stop bit. Using this approach,
 - i. what is the amount of time required to transmit 512 x 512 image with 256 gray level at 300 bauds.
 - ii. what would the time be at 9600 bauds
- (b) Consider the iamge segment shown below.

3 1 2 1 (q)

2 2 0 2

1 2 1 1

(p) 1 0 1 2

obtain D_4 , D_8 , and D_m distances between p and q. Let $V = \{0,1\}$

6. (a) Explain the meaning of histogram equalization. Give an example where the histogram equalization technique compresses the discrete gray level range of an image.
 (b) Show that crispened image can be obtained by convolving it with the mask

0	-1	0
-1	5	-1
0	-1	0

7. (a) How do you measure information?

- (b) Describe the compression of image by eliminating coding redundancy
- 8. (a) What is meant by image segmentation? Mention the applications of image segmentation.
- (b) Explain about detection of discontinuities.

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