

8E4092**8E4092**

B.Tech. (Sem.VIII) (Main/Back) Examination, April/May - 2012
Electronics & Communication
8AI4.1 Image Processing and Pattern Recognition (Elective)

Time : 3 Hours

[Total Marks : 80
[Min. Passing Marks : 24

Attempt any five questions selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

UNIT - I

1. What are the basic components of an image processing system? Write down the three examples of fields that use Digital Image Processing. (8 + 8)

OR

1. Explain all the elements of visual perception and light and electromagnetic spectrum. (8 + 8)

UNIT - II

2. (a) What is spatial and Grey level resolution for an image? Explain Moire pattern. (7 + 3)
 (b) Write short notes on :
 (i) Image sampling and quantization. 3
 (ii) Representing digital images 3

OR

2. What is zooming and shrinking of Digital Image? How can be removed the noise from image by using opening and closing morphological operations ? (8 + 8)

UNIT - III

3. Explain smoothing and sharpening spatial filters in detail. (8 + 8)

OR

Describe various type of frequency domain filters. 16

UNIT - IV

4. Explain Wavelet coding and lossy predictive coding methods. (8 + 8)

OR

4. Discuss different image compression fundamentals and scaling methodologies. 16

UNIT - V

5. Write down the application of pattern recognition in expert system and robotics. 16

OR

5. Discuss the following terms :
 (a) Methods for knowledge representation 5
 (b) Temporal and common sense reasoning 6
 (c) Logic and probabilistic interfacing. 5