

Total No. of Questions : 12]

SEAT No. :

P3162

[5461]-204

[Total No. of Pages : 2

B.E. (Electronics and Telecommunication)

DIGITAL IMAGE PROCESSING

(2012 Pattern) (End Semester) (Semester-I) (Elective-I) (408184A)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10, Q11 or Q12.*
- 2) *Figures to the right indicate full marks.*
- 3) *Assume suitable data if necessary.*
- 4) *Use of electronic pocket calculator is allowed.*

- Q1)** a) What are the different image file formats? Explain any one. [3]
b) Explain 4-connectivity, 8-connectivity and M-connectivity between the pixels. [3]

OR

- Q2)** What are the various steps in image processing? Explain in detail. [6]

- Q3)** a) What is image restoration? Explain with the help of block diagram. [4]
b) What is image blurring? Explain how to remove image blurring. [3]

OR

- Q4)** What is image enhancement? Explain following image enhancement techniques: [7]

- a) Log transformation
- b) Gray level slicing

- Q5)** a) Explain coding redundancy and interpixel redundancy in an image. [4]
b) Explain lossless image compression. Where you find the important applications of lossless image compression. [3]

OR

- Q6)** Explain DCT based compression technique of an image in detail. [7]

P.T.O.

- Q7) a)** Explain the following edge detection operators in image processing. [9]
i) Prewitt operator
ii) Canny operator
iii) Laplacian of Gaussian operator
b) Explain Hough Transform in detail. Also, give one application of Hough Transform. [9]

OR

- Q8) a)** What is adaptive thresholding? Write an algorithm for Otsu's method of thresholding and explain the same. [9]
b) Explain following morphological operations in image processing. [9]
i) Dilation
ii) Erosion
iii) Opening and closing

- Q9) a)** What are statistical moments? Explain different statistical moments used for shape representation. [8]
b) Explain 4-chain code and 8-chain code for the representation of an image. [8]

OR

- Q10) a)** Explain principal components for the description of an image. [8]
b) Explain "Polygonal approximation" and "Signatures" for the representation of an image. [8]

- Q11) a)** Explain following image classifiers. [8]
i) Minimum distance classifier.
ii) Correlation based classifier.
b) Explain with an algorithm, "Biometric Authentication", in image processing. [8]

OR

- Q12) a)** What is a "feature" and "feature extraction"? Explain the different types of features used for character Recognition using image processing. [8]
b) Explain Remote sensing application of an image processing in detail. [8]

