

Total No. of Questions : 12]

SEAT No. :

P3105

[Total No. of Pages : 2

[5670]-204

B.E. (Electronics & Telecommunication)

**Digital Image Processing
(2012 Pattern) (Elective - I)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10, Q.11 or Q.12.*
- 2) *Figures to the right indicate full marks.*
- 3) *Assume suitable data, if necessary.*
- 4) *Use of electronics pocket calculator is allowed.*

Q1) What is the advantage of mixed connectivity over 8 connectivity? Explain with an example. [6]

OR

Q2) Explain Image Histogram ? Draw the Image Histogram of 8 bit, full black image. [6]

Q3) Explain the following Image enhancement techniques. [7]

- i) Contrast Stretching.
- ii) Power law transformation.

OR

Q4) What is image Restoration? Explain Noise models in image Restoration. [7]

Q5) Explain MPEG video Compression standards. [7]

OR

Q6) Explain different types of redundancies present in an image. [7]

Q7) a) What is morphology in image processing ? Explain following operations in image morphology. [9]

- i) Dilation
- ii) closing
- iii) opening

b) Explain Thinning and Thickening operations in image morphology with an example. [9]

OR

P.T.O.

- Q8) a)** Explain wrto image segmentation. [9]
- i) Region Growing.
 - ii) Region Splitting.
 - iii) Region merging
- b) What is Global and Adaptive thresholding? Explain Adaptive thresholding algorithm in detail. [9]

- Q9) a)** What is a Descriptor? Explain different types of Regional Descriptors.[8]
- b) What is computational complexity and time complexity? Explain complexity wrto principal components for the description of an image.[8]

OR

- Q10)a)** Explain different types of chain codes? Draw the chain code for [8]
- 22 44 66 00
- b) What are the boundary descriptors? Explain with the help of an example.[8]

- Q11)a)** What is classification in digital image processing? Explain Bayes classification algorithm in detail. [8]
- b) Draw the block schematic of character Recognition in digital image processing? Explain at least four features required for character Recognition. [8]

OR

- Q12)a)** Explain minimum distance classifier algorithm with mathematical statement. [8]
- b) What is content based Image Retrieval? Write an algorithm of content based Image Retrieval and explain. [8]

