

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]

