B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRONICS AND COMMUNICATION ENGINEERING

Paper - IV : Digital Image Processing

Time : 3 Hours   **Maximum Marks : 75**

Answer question No. 1 compulsory   *(15)*

Answer ONE question from each unit   *(4 x 15 = 60)*

1)   a)   What do you mean by digital image processing?

      b)   What is meant by sampling and Quantisation?

      c)   What are the applications of Image Segmentation?

      d)   What are the basic steps for filtering in frequency domain?

      e)   What do you mean by image restoration?

      f)   Define error free compression & lossy compression.

      g)   Write two differences b/n spatial & frequency domain filtering.

Unit - I

2)   a)   Explain about components of an Image processing system.

      b)   What are the various applications of digital Image Processing?

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3)   a)   Explain how digital images can be represented.

      b)   Explain the following relationship between pixels.

           i)   Connectivity

           ii)   Distance measures

Unit – II

4)   a)   Define histogram of a digital image. Explain how histogram is useful in image enhancement.

       b)   Explain how derivative helps to derive tools for image sharpening.

OR

5)   Explain about smoothing and sharpening methods in frequency domain.

Unit – III

6)   a)   Explain the concept of inverse filtering & what are the limitations of it.

       b)   Explain about the restoration filters used when the image degradation is due to noise only.

OR

7)   a)   Explain with a block diagram about each block of image compression model.

       b)   Explain a lossy predictive coding model of encoder & decoder.

Unit – IV

8)   a)   Explain different thresholding operations used in image segmentation.

       b)   Explain the concept of edge linking & boundary detection.

OR

9)   Explain the detection of discontinuities in detail.

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