B. Tech Degree VII Semester (Supplementary) Examination June 2006

IT/EC/EB/CS 705 (A) DIGITAL IMAGE PROCESSING
(1999 Admissions onwards)

Time : 3 Hours   Maximum Marks : 100

I. (a) Explain the block diagram of an image processing system.   (10)
    (b) Explain the significance of Block matrices and kronecker products.   (10)
                                    OR
II. (a) Explain the need for image compression. Suggest some techniques for compression. (10)
    (b) Define z Transform and ROC. Explain how it is related to Fourier transform. (6)
    (c) List the first order and second order moments of random process.   (4)

III. (a) Explain the principle two dimensional sampling theory.   (10)
     (b) Explain MTF of a visual system.   (10)
                                    OR
IV.   Explain the uniform and non-uniform quantization of images.   (20)

V. (a) List the properties of unitary transform. Give some examples of unitary transform. (10)
    (b) Explain ID DFT, also give any 4 properties.   (10)
                                    OR
VI. (a) Explain sine and cosine transform. What is the significance of DCT?   (10)
    (b) Define (i)   Hair transform   (ii)   Harmard transform   (10)

VII. (a) Explain Histogram modeling and Histogram equilization.   (12)
     (b) Give any two operators for edge detection.   (8)
                                    OR
VIII. (a) Explain how the contrast stretching is done in images.   (10)
      (b) Write short note on :
              Color image enhancement   (10)

IX. (a) Explain any algorithm (transform) for line detection.   (10)
    (b) Write short note on :
            Stochastic gradients   (10)
                                    OR
X. (a) Explain the principle of spatial feature extraction.   (10)
    (b) Explain the principle of Computer vision.   (10)