TEC-044

B. Tech.

(SEM. VIII) EXAMINATION, 2007-08
DIGITAL IMAGE PROCESSING

Time : 3 Hours]   *[Total Marks : 100*

Notes :   Attempt **all** questions.

1   Attempt any **two** of the following: 10×2=20

(a)   Discuss the importance of Digital Image   10
Processing. Elaborate two examples where it is
used. Illustrate Moire pattern effect.

(b)   Discuss Image Negatives and Log   10
transformations. Represent Matric formation of
digital Image.

(c)   Evaluate two dimensional DFT and its inverse.   10
Explain Haar and Wavelet transform.

2   Attempt any **two** of the following :   10×2=20

(a)   Explain with figures and mathematical support   10
about Histogram processing.

(b)   Discuss the relevance of chromaticity diagram.   10
Explain RGB colour Model .

(c)   How are logical operations useful in Image   10
Enhancement ? What are point operations?

3 Attempt any **two** of the following : $10 \times 2 = 20$

   (a) Which are the variuos noises found in image   **10**
processing applications ? Derive the PDP of any
five of them.

   (b) How spatial filtering is useful in Restoration   **10**
of Image in the presence of Noise ?

   (c) Explain Periodic Noice Reduction by frequency   **10**
domain filtering.

4 Attempt any **two** of the following : $10 \times 2 = 20$

   (a) Derive and discuss the conditions noiseless   **10**
and noisy coding theorem.
Consider an 8-pixel line of gray scale data of {12,
12, 13, 13, 10, 13, 57, 54} has been uniformly
quantized with 6-bit accuracy. Construct its 3-
bit IGS code.

   (b) With Mathematical support discuss Huffman   **10**
coding.

   (c) Explain the working of encoder and decoder   **10**
of transform coding system.

5 Attempt any **two** of the following : $10 \times 2 = 20$

   (a) Segmentation techniques.

   (b) Boundary Extraction.   **10**

   (c) Line detection of discontinuity   **10**