[Nov-16]

[EUREC-731A]
B.Tech. Degree Examination

Electronics & Communication Engineering
VII SEMESTER

DIGITAL IMAGE PROCESSING
(Effective from the admitted batch 2012–13)

Time: 3 Hours
Max.Marks: 60

Instructions: Each Unit carries 12 marks.
Answer all units choosing one question from each unit.
All parts of the unit must be answered in one place only.
Figures in the right hand margin indicate marks allotted.

UNIT-I

1. a) Explain with block diagram about the elements of Digital Image Processing
   b) Explain the concept of sampling and quantization of an image. Explain how images are digitally represented

   OR

2. a) Formulate 1D Walsh transform kernel for N=4
   b) Discuss the salient features of Discrete Cosine transform?

UNIT-II

3. a) Explain arithmetic and logic operations that can be performed on Images
   b) Write about Robert edge detector

   OR

4. a) Derive the expression for PSNR of a two dimensional image
   b) What is histogram of an image? Sketch histograms of basic image types

UNIT-III

5. Explain briefly with block diagram about Homomorphic filtering approach for image processing
6. a) How is smoothing achieved in frequency domain? Explain 6
b) Write about the advantages of filters in frequency domain in case of image enhancement 6

UNIT-IV

7. a) Draw the block diagram of Block Transform coding and explain each block 8
b) Explain the need for image compression 4

OR

8. Write a short notes on LZW coding and Run Length coding 12

UNIT-V

9. a) What is meant by Image segmentation? Explain briefly about line detection and point detection 8
b) Write a short note on Thresholding 4

OR

10. a) What is meant by image degradation? Discuss various possibilities for image degradation 6
b) What is the use of wiener filter in image restoration? Explain 6

[04/VIS/316]