Reg. No. : | | | | | | | | | | |

Question Paper Code: 31476

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Elective

Electronics and Communication Engineering

01UEC910 - DIGITAL IMAGE PROCESSING

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

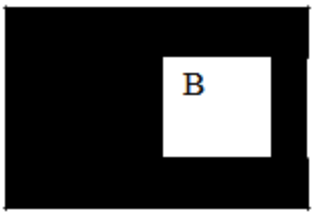
PART A - (10 x 2 = 20 Marks)

1. Define Mach band effect.
2. Cite 2D-DCT pair.
3. Define Homomorphic filtering.
4. Define smoothing.
5. Record the linear and non linear filters.
6. List the short comings of histogram equalization.
7. Why edge detection is most common approach for discontinuities?
8. State the condition to be met by the partitions in region based segmentation.
9. State hit or miss transform.
10. What is chain codes?

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Describe the function of elements of digital image processing system. (8)

(ii) In the given image; white pixel represent binary 1 and black pixel represent binary 0. Compute the logical operations AND, OR, NAND and XOR between the given images. (8)



Or

(b) (i) Define 2D DFT pair and discuss any three properties of it. (8)

(ii) Determine Walsh basics for the fourth order system and explain how Walsh transform is advantages than fourier transform. (8)

12. (a) Explain the smoothing and sharpening-spatial filters. (16)

Or

(b) Obtain Histrogram and Histogram equalization for a given image (4*4) – 4 bit per pixel is given by. (16)

$$f(x,y)=\begin{bmatrix}10 & 12 & 8 & 10\\ 10 & 12 & 12 & 14\\ 12 & 13 & 10 & 9\\ 14 & 12 & 12 & 9\end{bmatrix}$$

13. (a) With a mathematical model, describe constrained and unconstrained restoration. (16)

Or

(b) Explain mean and order statistics. (16)

14. (a) How do you link pixels through global processing? How do you perform edge detection? Give suitable algorithm and discuss how the edge points are linked? (16)

Or

(b) Explain the principles of region growing. (16)

15. (a) Formulate the chain codes and skeletons. (16)

Or

(b) (i) Explain in detail about various image representation approaches. (8)

(ii) Discuss in detail about different techniques of region representation. (8)