

Exam.Code:0920  
Sub. Code: 7021

1089  
B.E. (Computer Science and Engineering)  
Eighth Semester  
CSE-812: Digital Image Processing

Time allowed: 3 Hours

Max. Marks: 50

*NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.*

x-x-x

I. Attempt the following:-

- a) What do you mean by sampling rate of an image?
- b) List the different color models?
- c) Draw histogram of a black and white image with 20% black pixels.
- d) Describe the mask used for averaging filter in spatial domain.
- e) What is the use of pseudo coloring?
- f) What are the disadvantages of Huffman coding?
- g) List the main steps in JPEG compression?
- h) List any two boundary linking techniques.
- i) What is psychovisual redundancy
- j) List the different types of wavelets. (10x1)

**UNIT - I**

- II. a) Describe the different steps used in image acquisition and processing? What is the effect of low resolution?
- b) What is the difference between brightness and contrast? Describe the different contrast enhancement techniques. (5,5)
- III. a) What is histogram equalization? Explain the process.
- b) What are sharpening filters? Explain the use of unsharp masking. (5,5)
- IV. a) What are different types of degradations that can happen to image? How to detect and remove these?
- b) What is homomorphic filtering? (6,4)

P.T.O.

(2)

UNIT – II

- V. Describe the process of lossless predictive encoding? What is the role of quality of predictor? Explain the lossless JPEG encoding in detail. (10)
- VI. a) Describe the Arithmetic coding algorithm. Trace the algorithm on following input "CBCDA". Frequency of occurrence of different symbols is (A=0.1, B=0.4, C=0.3, D=0.2).
- b) List the different boundary descriptors. Explain the Fourier descriptors? (5,5)
- VII. a) What is hough transformation? How can we use it to detect the circles in an image?
- b) What are chain codes? (6,4)

x-x-x