

Code: R7410408

B.Tech IV Year I Semester (R07) Supplementary Examinations December 2015

DIGITAL IMAGE PROCESSING

(Electronics & Communication Engineering)

(For 2008 regular admitted batch only)

Time: 3 hours

Max. Marks: 80

Answer any FIVE questions
All questions carry equal marks

- 1 Explain the following w.r.t relationship between pixels in an image:
 - (a) Neighbors of a pixel.
 - (b) Adjacency.
 - (c) Path.
 - (d) Region.
 - (e) Boundary.
- 2 (a) Explain the basic principle of fast algorithms used to compute image transforms.
(b) Explain the fast Fourier transform algorithm.
- 3 What is meant by point processing? And hence discuss the following point processing enhancement techniques.
 - (a) Contrast stretching.
 - (b) Bit extraction.
 - (c) Clipping and thresholding.
 - (d) Range compression.
- 4 (a) Explain the image enhancement process using Laplacian in the frequency domain.
(b) Given with a spatial filter, explain how the corresponding frequency domain filter is obtained.
- 5 (a) Make a comparison between full color image processing and pseudo color image processing.
(b) Explain any one color image model.
- 6 With the help of an image degradation / restoration model explain the restoration process and hence derive an expression for inverse filter used for restoration.
- 7 Explain the three types of redundancies in images and suggest a technique for each to eliminate these redundancies.
- 8 Give the fundamentals of region based segmentation, and hence explain the two methods:
 - (a) Region growing.
 - (b) Region splitting and merging.
