Code No: 117CJ

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
DIGITAL IMAGE PROCESSING
(Electronics and Communication Engineering)

Time: 3 Hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a) Define Weber Ratio [2]
b) What is city block distance [3]
c) What is mean by Image Subtraction? [2]
d) What are Piecewise-Linear Transformations [3]
e) What is degradation function? [2]
f) What is Gray-level interpolation? [3]
g) What are the logic operations involving binary images [2]
h) What is convex hull? [3]
i) Define Compression Ratio [2]
j) What is Arithmetic Coding? [3]

PART-B

(50 Marks)

2.a) Discuss the role of sampling and quantization with an example.
b) With a neat block diagram, explain the fundamental steps in digital image processing. [5+5]

OR

3.a) Discuss the Relationship between Pixels in detail.
b) Discuss optical illusions with examples. [5+5]

4.a) State different types of processing used for image enhancement.
b) Explain in detail smoothing frequency-domain filters related to images. [5+5]

OR

5.a) Explain any two methods used for digital image zooming and shrinking.
b) Discuss two dimensional orthogonal unitary transforms. [5+5]

6.a) Discuss the minimum mean square error filtering.
b) Explain the model of image degradation process. [5+5]

OR

7.a) Discuss in detail the Inverse Filtering.
b) Write about Constrained Least Squares Restoration in detail. [5+5]

8.a) Write Edge Linking And Boundary Detection.
b) Write about detection of discontinuities. [5+5]

OR

9.a) Discuss the Region Oriented Segmentation.
b) Explain about Hit or Miss Transformation. [5+5]

10.a) Explain about Lossy and Lossless Predictive Coding
b) Explain about the methods of removal of redundancy. [5+5]

OR

11.a) Discuss the Transform Based Compression.
b) Write a short note on JPEG 2000 Standards. [5+5]

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