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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