R13

Code No: 117CJ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2018
DIGITAL IMAGE PROCESSING
(Common to ECE, ETM)

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)	What is Digital Image Processing?	[2]
b)	Define Walsh Transform.	[3]
c)	What is the objective of image enhancement technique?	[2]
d)	List the steps involved in frequency domain filtering.	[3]
e)	Compare Image enhancement and Restoration techniques.	[2]
f)	Write the drawbacks of image restoration using inverse filtering.	[3]
g)	List the applications of segmentation.	[2]
h)	What is global, Local and dynamic or adaptive threshold?	[3]
i)	What is image compression?	[2]
j)	List out the JPEG 2000 standards.	[3]

PART-B (50 Marks)

2.a) Explain the basic concepts of sampling and quantization in the generation of digital image.
b) Explain the following terms: [5+5]
i) Adjacency ii) Connectivity iii) Regions iv) Boundaries.

OR

3.a) Compare and contrast different image transform techniques.
b) Find out the Slant transform matrix for N=8. [5+5]

4.a) Illustrate the histograms of basic Image types.
b) Discuss any one method of an image enhancement through point operation. [4+6]

OR

5.a) Explain image smoothing using ideal lowpass filters.
b) List various approaches used in Image enhancement and then discuss any one method of it. [5+5]

6. Discuss in detail the image restoration using minimum mean square error filtering.[10]

OR

7.a) How degradation function is estimated? Explain.
b) Briefly explain the interactive image restoration. [5+5]

8.a) Explain briefly the segmentation based on thresholding.
b) Discuss briefly the region based segmentation. [5+5]

OR

9. Discuss in detail the following morphological operations:
a) Erosion
b) Dilation [5+5]

10.a) What is Error Free Compression? Explain.
b) Discuss briefly the Image compression using Arithmetic coding. [5+5]

OR

11. Draw the functional block diagram of image compression system and explain the purpose of each block. [10]

--ooOoo--