Exam.Code:0926
Sub. Code: 6876

1058

B.E. (Information Technology)
Eighth Semester
ITE-841: 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 Part.

x-x-x

a) Define bit depth, brightness adaption.
b) Discuss the role of padding in spatial filtering process? What are its types?
c) Discuss two operations that can be easily carried out in frequency domain?
d) What is image gradient? How it can be used to link edges?
e) What are descriptors?

(10)

PART – A

Qn 2 a) What are the various steps in digital image processing? Discuss the significance and role of each processing step.
b) How are colour images represented in memory? Discuss transformation operations on colour images. **(5, 5)**

Qn 3 a) What is image enhancement? Discuss various pixel level transformations and their key application areas.
b) What is spatial filtering, histogram matching and contrast stretching? For the following digital image, use a 3x3 filter and illustrate the working of median filtering. (on marked pixels)

5	4	7	6
3	7	0	2
7	0	1	6
2	4	5	2
7	0	2	1
1	6	3	4

Figure 1

(5,5)

Qn 4 a) What are the various sources of image degradation? Discuss the approaches for restoring a degraded image.
b) What is an image spectrum? Discuss the ideal low pass and high pass filter in frequency domain. **(5,5)**

PART – B

Qn 5 a) Explain any one lossless compression technique. What are the redundancies exploited in this compression method?
b) What is Image fidelity? Discuss how quality of image compression can be varied in JPEG compression technique. **(5,5)**

Qn 6 a) What are Robert and Sobel operators? Discuss its operation and application.
b) What are boundary descriptors? Explain 4-directional and 8-directional chain codes. **(5,5)**

Qn 7 Explain the following: pattern matching, feature reduction, clustering, distance measure, texture **(10)**

x-x-x