

Roll No.....

Paper Code: NCS-801

United College of Engineering and Research, Allahabad

Digital Image Processing

B.Tech (8th Semester) CSE

First Sessional Exam, 2016-17

Time: 2 hours

Max Marks: 30

Section A

Attempt All Questions in section A

(1x10=10)

1. What do you understand by Digital Image Processing?
2. List any four application of digital image processing.
3. What do you mean by image enhancement?
4. Discuss the two approaches of image enhancement.
5. Describe image negative transformation.
6. List any two advantages and disadvantages of digital images.
7. What do you mean by brightness and contrast in an image.
8. Explain region, boundary and edge.
9. Explain 4-Neighbour and 8-Neighbour of a pixel.
10. How many intensity levels will be there in a 24 bits image.

Section B

Attempt Any three Questions from Section B

(3x4=12)

1. What is a digital image? Classify the digital images.
2. Describe different elements of an image processing system with suitable diagram.
3. Explain with help of an example sampling and quantization.
4. Describe various components of an image processing system with suitable diagram.
5. Explain how an image is formed in the human eye and how it adapt and discriminate brightness level?

Section C

Attempt Any one Question from Section C

(1x8=8)

1. (a) Explain the Log transformation and Inverse Log transformation. Write its advantages.
(b) What do you mean by Gamma correction in power law transformation.. what is the importance of gamma correction in power law transformation.
2. Consider the image segment shown. Let $V=\{1,2\}$ and compute the length of the shortest 4-, 8-, and m-path between p & q. if a particular path does not exist between these points explain why.

	3	1	2	1 (q)
	2	2	0	2
	1	2	1	1
(p)	1	0	1	2

3. consider the two image subsets S_1 and S_2 , shown below. For $V = \{1\}$, determine whether these two subsets are
(a) 4-adjacent
(b) 8-adjacent
(c) m-adjacent

	S_1					S_2				
0	0	0	0	0	0	0	0	1	1	0
1	0	0	1	0	0	0	1	0	0	1
1	0	0	1	0	1	1	0	0	0	0
0	0	1	1	1	0	0	0	0	0	0
0	0	1	1	1	0	0	1	1	1	1