Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

II SEMESTER MCA

END SEMESTER EXAMINATIONS, APR-MAY 2019

SUBJECT: DIGITAL IMAGE PROCESSING [MCA 5003]

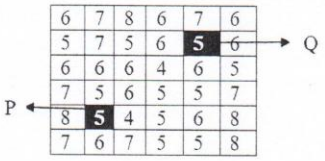
REVISED CREDIT SYSTEM

(29/04/2019)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** questions.
- Missing data may be suitably assumed.

1A.	What is Digital Image Processing (DIP)? Explain the basic steps of image processing.	**5**
1B.	Discuss the different types of pixel relationships exists with its neighborhood.	**3**
1C.	What is sampling and quantization? Discuss.	**2**
2A.	A path from pixel P with coordinate (x,y) to pixel Q with coordinate (s,t) with values from V={4,5,7}. Define 4-, 8-, and m-paths between P and Q pixels in the sub image given below.  	**5**
2B.	What is Image Enhancement? Discuss contrast stretching with the help of a transformation function.	**3**
2C.	Distinguish spatial domain and frequency domain transformation.	**2**
3A.	What is Convolution and Correlation of an Image? Explain the operations in the 1D spatial domain with an example.	**5**
3B.	Why Laplacian operator is normally used for image sharpening operation? Discuss.	**3**
3C.	What is Image Segmentation?	**2**

4A.	Explain Laplacian of Gaussian(LoG) operator for image filtering. Why second order derivative operation is not normally used for edge detection.	**5**
4B.	What is meant by global, local and adoptive thresholding?	**3**
4C.	What is the purpose of chromaticity diagram?	**2**
5A.	What is Region based segmentation? Explain how to choose the seed points for region growing operation?	**5**
5B.	Explain thinning and thickening morphological operations.	**3**
5C.	Define Hit-or-Miss transformation? Discuss its applications.	**2**