Printed Pages: 01 **Sub Code: MTCS052**

Paper Id: 210214 **Roll No.** | | | | | | | | | | |

M. TECH.

(SEM-II) THEORY EXAMINATION 2018-19

DIGITAL IMAGE PROCESSING

Time: 3 Hours ***Total Marks: 70***

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION – A

1. You are required to answer **all** the parts of this question. (2×7=14 marks)
   (a) Define temporal redundancy.
   (b) Define weber ratio.
   (c) What is gamma correction?
   (d) What is contrast stretching?
   (e) Define segments.
   (f) Explain thresholding.
   (g) What is advantage of digital processing?

SECTION – B

2. Attempt any **three** parts of the following: (7×3=21 marks)
   (a) Explain the following morphological Algorithms:
      i. Thining
      ii. Thicking
      iii. Convex Hull
      iv. Extraction of connected components.
   (b) What do you mean by image segmentation? What are different image segmentation techniques? Explain texture segmentation in detail.
   (c) Explain the 4-8 and m connectivity of pixels. Explain region edge in context with connectivity of pixels.
   (d) Explain color image smoothing and sharpening in detail.
   (e) Find the equivalent filter,H(u,v) that implements in the frequency domain. The spatial operation performed by the Laplacian.

SECTION – C

3. Attempt any **one** part of the following: (7×1=7 marks)
   (a) Explain the fundamental steps of image processing.
   (b) Explain the process of image sampling and quantization in detail.

4. Attempt any **one** part of the following: (7×1=7 marks)
   (a) What is Grey level Transformation? Explain
   (b) Explain the use of weiner filter in detail.

5. Attempt any **one** part of the following: (7×1=7 marks)
   (a) Discuss the basics of color image processing. Explain color transformation in detail.
   (b) Describe Gradient operator with example.

6. Attempt any **one** part of the following: (7×1=7 marks)
   (a) What is compression? Explain statistical and spatial compression in detail.
   (b) What is edge detection? Explain its techniques in detail.

7. Attempt any **one** part of the following: (7×1=7 marks)
   (a) Show that redefining the starting point of a chain code so that the resulting sequence of numbers forms an integer of minimum magnitude makes the code independent of the initial starting point on the boundary
   (b) Explain DCT in detail.