Printed pages: 02 **Sub Code: MTCS052**

Paper Id: 210213 **Roll No.** | | | | | | | | | | |

M. TECH.

(SEM -II) THEORY EXAMINATION 2017-18

DIGITAL IMAGE PROCESSING

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

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

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a. Explain DFT & DST .
b. What do you mean by colour image impression?
c. Explain Lossy and Lossless predictive type coding.
d. List the hardware oriented color models
e. What is Chromatic Adoption?
f. Explain CMY model.
g. Describe the fundamental steps in image processing?

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a. Describe different stage involve in an image processing system.
b. Describe spatial domain and frequency domain methods of image enhancement with example.
c. Explain dilation and erosion process with example.
d. What is wavelet? Compare wavelet transforms with four year transform.
e. Describe the following technique with example :
    1. Line detection.
    2. Edge Detection.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a) Explain feature extraction and feature detectors and differentiate it with segmentation of the image processing.
(b) Explain any two regional descriptors in short. Give a 4X4 image whose gray levels ordered lexicographically are as follows:
2 3 0 1 1 3 1 2 0 2 0 3 1 1 2 3

4. Attempt any *one* part of the following: 7 x 1 = 7

(a) What is clustering? Discuss types of clustering.
(b) Explain signature boundary segments with examples.

5. Attempt any *one* part of the following: 7 x 1 = 7

(a) Explain sampling and quantization process of digital images.
(b) Elaborate the Method for image segmentation based on region growing.

6. Attempt any *one* part of the following: 7 x 1 = 7

(a) Explain image compression models.

(b) Explain digital image processing model.

7. Attempt any *one* part of the following: 7 x 1 = 7

(a) Write short notes on the following:
   1) Mean and median filters.
   2) Derivative filters

(b) Describe any two image restoration techniques in details.