2019

M.Phil.

2nd Semester Examination

COMPUTER SCIENCE

Paper - COM 123

(Digital Image Processing)

Full Marks: 40

Time: 2 Hours

The figures in the margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable. Illustrate the answers wherever necessary.

Answer any *four* questions from the following: $4\times10=40$

- 1. (a) What do you mean by image enhancement?
 What is Histogram equalization? 2+3
 - (b) Discuss about the ideal low pass, Butterworth, and Gaussian low pass filtering in frequency domain.
 5

[Turn Over]

(b) Explain Harmonic mean filter.

- 2. (a) What is meant by image restoration? What is noise model? Explain different noise models for image noise term n(x, y). 2+2+4
- 3. (a) What are Laplacian and Gaussian operator?

 Describe different common edge dictactors.

2

2+2+4

- (b) What is thresholding approach for image segmentation.
- (a) Explain two morphological operations (i) erosion
 (ii) dialation.
 - (b) Describe two compound operation used in morphological image processing (i) opening (ii) closing.3+3
- (a) Explain two very popular color model those are used in colour image processing (i) RGB (ii) HIS.
 - (b) How can we convert a colour model from RGB to HSI color values.

6. Write short notes (any two):

5×2=10

- (a) Image compression
- (b) Fourier transform
- (c) Homomorphic filtering
- (d) Basic Gray level transformation