



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – COMPUTER SCIENCE

THIRD SEMESTER – NOVEMBER 2017

16PCS3MC02 – DIGITAL IMAGE PROCESSING

Date: 03-11-2017

Dept. No.

Max. : 100 Marks

Time: 09:00-12:00

Part A

Answer ALL questions

10 x 2 = 20

1. What is a Digital Image?
2. Write the formula for adding two images.
3. State the objective of Image Enhancement.
3. What is the need of Filtering?
5. What is noise? Give two examples.
6. How is degradation process modeled?
7. What is Data Compression ratio?
8. Write the core concept used in Bit plane coding.
9. What are Chain codes?
10. Name any three Regional Descriptors.

Part B

Answer ALL questions

5 x 8 = 40

- 11 a) Describe the Logical operations which are involved in Digital Image Processing.
(OR)
b) Write short notes on Sampling and Quantization.
- 12 a) Illustrate the basic Gray level Transformations.
(OR)
b) Write about sharpening and smoothing on spatial filters.
- 13 a) Explain the Image Degradation and Restoration process.
(OR)
b) Give brief notes on singular value decomposition with suitable diagram.
- 14 a) Describe the LWZ compression with a sample string.
(OR)
b) What are Image compression standards? Describe JPEG.
- 15 a) Explain any 2 Edge detection techniques.
(OR)
b) What are Fourier Descriptors? Explain it with relevant equations.

Part C

Answer any TWO questions

2 x 20 = 40

- 16 a) Describe the fundamental steps in Digital Image Processing with a neat diagram.
b) Explain the various Geometrical operations on images.
- 17 a) Explain Image Enhancement in the spatial domain.
b) Describe the Blind Image Restoration Technique.
- 18 a) Explain the variable length coding in lossless compression.
b) Briefly explain the following Image representation techniques.
(i) Boundary Descriptors
(ii) Topological Descriptors.
