QP CODE: 25022378

25022378

Reg No : .....

Name : .....

M.Sc DEGREE (CSS) SPECIAL REAPPEARANCE EXAMINATION, APRIL 2025

Third Semester

CORE - CA010301 - DIGITAL IMAGE PROCESSING

M.Sc COMPUTER SCIENCE,M.Sc COMPUTER SCIENCE(Aided)

2019 ADMISSION ONWARDS

BF042CD2

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. What is image processing system?
2. Differentiate between 4 - adjacency and 8 -adjacency.
3. Write expression to represent processes on image in spatial domain.
4. How image quality is improved by image averaging?
5. What is 1-D Discrete Fourier Transformation?
6. Describe the Rotation property of 2-D DFT.
7. How is image restoration different from image enhancement?
8. What is MPEG compression?
9. What is the use of Canny Edge Detector?
10. Describe the procedure for splitting and merging.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. What is the difference between digital image and digital image processing? Explain.
12. What is gamma correction and why is it needed?
13. What is histogram of an Image? Sketch histograms of basic Image types. Discuss how histogram is useful for Image enhancement.
14. Compare ideal low -pass and ideal high-pass filter.

15. Explain the operation of the Harmonic mean filter and Contraharmonic mean filter. For which noise each work well.

16. Why do we need compression? Where is lossy compression used?

17. Explain Variable thresholding.

18. Describe Watershed Transform.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. What is Smoothing Spatial filters?
    Explain the following Order - Statistics Filters.
    i. Max and min filters ii. Median filter iii. Alpha-Trimmed mean filter

20. Explain the illumination and reflectance concept used in homomorphic filtering.

21. What do you mean by Noise in image processing? Explain any three noise models.

22. Explain Marr-Hildreth edge detector with example.

(2×5=10 weightage)