

(FOR THE CANDIDATES ADMITTED
DURING THE ACADEMIC YEAR 2022 ONLY)

22PCS314

REG.NO.

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI
END-OF-SEMESTER EXAMINATIONS : NOVEMBER 2023

M.Sc COMPUTER SCIENCE(SF)

MAXIMUM MARKS: 50

SEMESTER III

TIME : 3 HOURS

PART - III

22PCS314 – DIGITAL IMAGE PROCESSING

SECTION – A

(10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

(K1)

1. Pixel is _____.
 - a) elements of digital image
 - b) elements of analog image
 - c) cluster of digital image
 - d) cluster of analog image
2. What is Digital Image Processing?
 - a) Application that alters digital videos
 - b) Software that allows altering digital pictures
 - c) System that manipulates digital medias
 - d) Machine that allows altering digital images
3. Which side of the greyscale is the components of the histogram concentrated in a dark image?
 - a) Medium
 - b) Low
 - c) Evenly distributed
 - d) High
4. Name the coding technique when each source symbol is mapped into fixed sequence of code symbols or code words.
 - a) Block code
 - b) Huffman code
 - c) instantaneous
 - d) variable length coding
5. _____ subdivides on image in to its constitute regions or objects.
 - a) segmentation
 - b) abstraction
 - c) histogram processing
 - d) transformations

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES

(K2)

6. Define Brightness
7. List the steps involved in image processing.
8. What is the need of transform?
9. What are the types of noise models?
10. What is edge?

SECTION – B

(5 X 3 = 15 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)

11. a) Describe the image sampling and quantization. **(OR)**
b) Comment on Image sensing and acquisition in brief.

(CONT...2)

12. a) Chart down the Basics of spatial filtering. (OR)
 b) Present histogram processing in short.
13. a) Discuss the model of image degradation. (OR)
 b) Sketch out Direct inverse filtering
14. a) Demonstrate the fundamentals of image compression models (OR)
 b) Illustrate the variable length coding in brief.
15. a) Discuss the concept of segmentation by morphological Watershed Transform.(OR)
 b) Express various Image compression standards

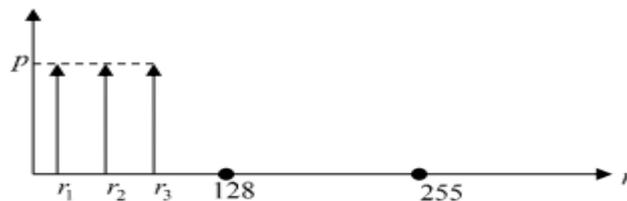
SECTION – C

(5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

(K4 (Or) K5)

16. a) Describe the fundamental steps in image processing. (OR)
 b) Explain the structure of human eye.
17. a) Consider a grey-level image $f(x, y)$ with histogram sketched below.



- (i) What can we say about $f(x, y)$?
- (ii) Propose an intensity transformation function which will improve the contrast of the image when it is used to modify the intensity of the image.
- (iii) Sketch the histogram of the transformed intensity.
- (iv) Calculate the mean and the variance of the two images. (OR)
- b) Analyze the performance if Combining spatial enhancement methods.
18. a) Describe the Wiener Filtering method. (OR)
 b) Explain the Iterative Nonlinear Restoration using the Lucy-Richardson Algorithm
19. a) Differentiate lossless predictive coding and lossy predictive coding (OR)
 b) What is error free compression ? Discuss bitplane coding and Arithmetic coding
20. a) Explain about point,line and edge detection. (OR)
 b) Assess the region oriented segmentation in detail
