Code No.: IT734PE | R20 | H.T.No. | | | 8 | R | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
IV–B.TECH–I–Semester End Examinations (Regular) - November- 2024
IMAGE PROCESSING
(IT)

[Time: 3 Hours]   [Max. Marks: 70]

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A   (20 Marks)

1. a) List the steps involved in digital image processing.   [2M]
   b) Name various arithmetic and logical operations that can be done on Images.   [2M]
   c) What are the basic steps in filtering in the frequency domain?   [2M]
   d) Define contrast sketching.   [2M]
   e) Compare image enhancement and restoration techniques.   [2M]
   f) Give the probability density functions for Gaussian noise models.   [2M]
   g) Define segmentation.   [2M]
   h) Write the mask for sobel operator?   [2M]
   i) What is image compression?   [2M]
   j) Explain Psychovisual Redundancy.   [2M]

PART-B   (50 Marks)

2. Discuss about the following relationships between pixels with neat diagrams.   [10M]
    i.   Neighbors of a pixel
    ii. Connectivity
    iii. Distance measures Path
                                    OR
3. State and prove separability property of 2D-DFT.   [10M]

4. Define histogram of a digital image. Explain how histogram is useful in image   [10M]
    enhancement.
                                    OR
5. Discuss about Ideal High Pass Filter and Butterworth High Pass filter.   [10M]

6. Discuss the process of image restoration by direct inverse filtering.   [10M]
                                    OR
7. Explain the method of Least Mean Squares Filter in (Wiener) for image restoration. [10M]

8. Explain about basic adaptive thresholding process used in image segmentation.   [10M]
                                    OR
9. Explain about region based segmentation.   [10M]

10. Explain about lossy predictive coding.   [10M]
                                    OR
11. Explain a method of generating variable length codes with an example.   [10M]
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