H.T.No. | | | | | | | | | | |

Code No: CT3544 **SRGEC-R20**

III B.Tech II Semester Supplementary Examinations, January 2024

IMAGE PROCESSING

(Computer Science and Engineering, Artificial Intelligence and Data Science & Information Technology)

Time: 3 Hours **Max. Marks: 70**

Note: Answer one question from each unit.
All questions carry equal marks.

5 × 14 = 70M

UNIT-I

1. a) Explain with neat diagram, how image is acquired using single sensor? (7M)
   b) Define a Digital image. Distinguish between digital image and binary image. (7M)

(OR)

2. a) Explain how distance can be measured between pixels in digital images. (7M)
   b) Illustrate sampling and quantization with a neat diagram. (7M)

UNIT-II

3. a) How intensity level slicing and bit plane slicing is performed on an image? Explain. (7M)
   b) Write about sharpening filters. (7M)

(OR)

4. a) What is histogram? How can you distinguish the dark, bright, low contrast and high contrast images with its histograms? (7M)
   b) What is meant by the Gradient and the Laplacian? Discuss their role of it in image enhancement. (7M)

UNIT-III

5. a) Compare different colour models. (7M)
   b) Discuss about colour image sharpening. (7M)

(OR)

6. Discuss the following color segmentation techniques. (14M)
   (i) Thresholding
   (ii) RGB color space segmentation.

UNIT-IV

7. Explain the general compression system with encoder and decoder. (14M)

(OR)

8. a) Explain Psycho visual redundancy and interpixel redundancy with example. (8M)

   b) Develop an LZW code for a given **4 x 4** 8 bit image (6M)

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UNIT-V

9. a) Give a detailed note on Erosion with an example. (7M)

   b) What is thresholding? Discuss all its techniques in segmentation. (7M)

(OR)

10. Describe at least three different morphological set operations (except erosion and dilation). What in the image disappears when it is eroded and dilated, respectively? (14M)

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