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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech IV Year I Semester Regular Examinations November/December-2022

DIGITAL IMAGE PROCESSING

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

- 1 a Tell us why you're processing images. Write down the basic steps that can be used to process images in digital form. L1 6M
- b Discuss about the process of image sensing and acquisition using the appropriate diagrams. L2 6M

OR

- 2 a Describe the elements of digital image processing while using the suitable block diagram. L1 6M
- b List out the applications of image subtraction and image multiplication. L2 6M

UNIT-II

- 3 a Prove the Separable property of 2D – Discrete Fourier Transform. L1 6M
- b Compare various image transforms. L2 6M

OR

- 4 a Estimate the basis matrix of Walsh Transform for $N = 4$. L1 6M
- b Give the algorithm and flowchart for calculating the Harr basis when defining the Haar transform. L2 6M

UNIT-III

- 5 a Give a good example to illustrate the operations of bit extraction and intensity level slicing in image enhancement. L1 6M
- b Describe the principles of spatial filtering using an appropriate diagram. L2 6M

OR

- 6 a Give a good example to demonstrate how to expand the contrast when enhancing images. L1 6M
- b Construct the pseudo-color processing functional block diagram and describe each block. L2 6M

UNIT-IV

- 7 a With appropriate PDF expression, describe the Rayleigh and Erlang noises. L1 6M
- b Describe the Watershed transform's role in image segmentation. L2 6M

OR

- 8 a The significance of impulsive noise, uniform noise, and exponential noise should be discussed together with the PDF expression. L1 6M
- b Examine the Laplacian of Gaussian (LoG) operator's role in edge detection. L2 6M

UNIT-V

- 9 a Define the following terms : L1 6M
Data, Information, Data Redundancy, Data compression and Compression Ratio.
- b Describe Bit plane coding in general terms with an appropriate example. L2 6M

OR

- 10 Describe spatial and temporal redundancy using an appropriate example. L1 12M

*** END ***

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Reg.

TECHNOLOGY, P.T.P.

1. The first part of the report is devoted to a general survey of the state of the art in the field of...

2. The second part of the report is devoted to a detailed study of the various methods...

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