Q.P. Code: 19EC0437 **R19**

Reg. No: | | | | | | | | | | |

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 : Data, Information, Data Redundancy, Data compression and Compression Ratio.	L1	6M
	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

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