Q.P. Code: 16EC432 **R16**

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech IV Year I Semester Supplementary Examinations August-2021

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	Explain about image sampling and quantization process with proper steps.	**9M**
	b	List out the applications of digital image processing.	**3M**

OR

2	a	Discuss the process of image sense and acquisition along with suitable diagrams.	**9M**
	b	Define the following terms: N4(P),N8(P)&ND(P).	**3M**

UNIT-II

3	a	Determine the image basis function of 2D –Discrete Cosine Transform when N = 4.	**8M**
	b	Outline that KL transforms is an Optimal Transform.	**4M**

OR

4	a	Determine the image basis function of Walsh Transform when N = 4.	**7M**
	b	List out the properties of 2D –Orthogonal Transform and 2D –Unitary transform.	**5M**

UNIT-III

5	a	Illustrate the smoothing spatial filters along with the required expressions.	**6M**
	b	Summarize the Intensity level slicing operation and bit extraction operation in image enhancement with suitable example.	**6M**

OR

6	a	Compare the Low Pass Filter and High Pass Filter in image processing methods.	**4M**
	b	Label the CIE chromaticity diagram and discuss its significance.	**8M**

UNIT-IV

7	a	Outline the different type of noise models and explain the Gaussian noise with proper PDF expression.	**7M**
	b	Compare the Rayleigh noise and Erlang noise with proper PDF expression.	**5M**

OR

8	a	Explain the inverse filtering for image restoration with relevant equations.	**6M**
	b	Summarize the importance of exponential noise, uniform noise and impulse noise along with PDF expression.	**6M**

UNIT-V

9	a	Illustrate the procedure of the Huffman coding along with suitable example.	**6M**
	b	Summarize the role of JPEG and PNG for image compression.	**6M**

OR

10	a	Outline the importance of DICOM and TIFF for image compression	**4M**
	b	Evaluate the coding efficiency for the following probabilities based on Huffman coding.	**8M**

Symbol	m1	m2	m3	m4	m5	m6
Probability	0.5	0.2	0.1	0.1	0.06	0.04

*** END ***