

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

Fifth Semester

Electronics and Communication Engineering

CEC366–Image Processing

Regulations - 2021

Duration : 3 Hrs

Maximum : 100 Marks

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Distinguish image sampling from quantization.	AN	1	2
2.	How does the DCT differ from DFT?	AN	1	2
3.	Clarify histogram equalization.	UN	2	2
4.	Differentiate smoothing and sharpening spatial filtering.	AN	2	2
5.	Define Gaussian noise and outline its effects on image quality.	UN	3	2
6.	What is the purpose of notch filters in image restoration?	RE	3	2
7.	How edges are linked through Hough transform?	UN	4	2
8.	Summarize about region growing.	UN	4	2
9.	Write the special features of Fourier descriptors.	RE	5	2
10.	Identify the usefulness of the JPEG standard in image processing.	UN	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Outline the process of image sensing and acquisition and explore the types of sensors used in digital image acquisition.	AN	1	13
	Or			
	b Examine the importance of color image fundamentals in digital image processing and explain how color models are used to manipulate images.	AN	1	13
12.	a Classify the gray level transformations used for image enhancement.	UN	2	13
	Or			
	b Demonstrate the homomorphic filtering approach in image enhancement.	UN	2	13
13.	a Demonstrate the application of mean filters on a noisy image and evaluate their impact on noise reduction.	UN	3	13
	Or			
	b Explain a Wiener filter for image restoration and specify its advantages over the inverse filter.	UN	3	13

14.	a	Explain region splitting and merging technique for image segmentation with suitable examples.	UN	4	13
-----	---	---	----	---	----

Or

	b	Explain in detail about the watershed segmentation algorithm.	UN	4	13
--	---	---	----	---	----

15.	a	Interpret in detail about run length encoding with an example.	UN	5	13
-----	---	--	----	---	----

Or

	b	Summarize in detail about patterns and pattern classes.	UN	5	13
--	---	---	----	---	----

*PART – C (Marks 1*15 = 15)*

<i>Q.No</i>		<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
16.	a	Discuss the major steps involved in digital image processing covering the process from image acquisition to the final output.	CR	1	15
		Or			
	b	Elaborate the process of Huffman coding and its strengths and weaknesses in data compression.	CR	5	15