

Reg.No.:

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VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 5030

M.E. / M.Tech. DEGREE END-SEMESTER EXAMINATIONS – JUNE / JULY 2024

Second Semester

Computer Science and Engineering

P23CSE15 – DIGITAL IMAGE PROCESSING

(Regulation 2023)

Time: Three Hours

Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	What is interest point detection with respect to image processing?	2	K1	CO1
2.	Outline the fundamental steps in Digital Image Processing?	2	K1	CO1
3.	State any two order statistics filter with kernel.	2	K1	CO2
4.	Define the term spatial correlation and convolution with suitable examples.	2	K1	CO2
5.	Give the formula for transform function of a Butterworth low pass filter.	2	K1	CO3
6.	Write down the steps involved in frequency domain filtering.	2	K1	CO3
7.	Paraphrase about homogeneity property in Linear Operator.	2	K1	CO4
8.	What is meant by Image Restoration?	2	K1	CO4
9.	What are the three types of discontinuity in digital image?	2	K1	CO5
10.	State any two cardinal properties used for establishing similarity of edge pixels?	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	Explain the significance of sampling and quantization in DIP.	13	K1	CO1
	(OR)			
b)	Describe elements of a Digital Image Processing System.	13	K1	CO1
12. a)	Explain in detail about Grey level Transformation.	13	K2	CO2
	(OR)			
b)	Describe about the various operations performed on colour images. How these operations are extended from their grey level counterpart?	13	K2	CO2
13. a)	A 2-dimensional DFT can be obtained using a 1-dimensional DFT twice. Explain.	13	K2	CO3
	(OR)			
b)	Give the relation for 1-D DCT (Discrete Fourier Transformation).	13	K2	CO3
14. a)	Tabulate the difference between image Enhancement and Restoration methodology.	13	K1	CO4
	(OR)			
b)	Outline the relation between impulse, exponential and Rayleigh noise.	13	K1	CO4
15. a)	Describe shape numbers and Fourier descriptors.	13	K2	CO5
	(OR)			
b)	Define Thresholding and explain the various methods of thresholding in detail?	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.	Questions	Marks	KL	CO
16. a)	Explain Hit or Miss transformation in detail.	15	K2	CO5
	(OR)			

- b) The following image has a 5x5 matrix with gray levels from 0 to 7. Perform histogram equalization of the image and obtain the final image.

15

K5

CO2

5	5	5	5	5
3	5	7	5	3
3	7	7	7	3
3	5	7	5	3
5	5	5	5	5