Code: 20A04702b

R20

B.Tech IV Year I Semester (R20) Regular Examinations December/January 2024

DIGITAL IMAGE PROCESSING

(Electronics & Communication Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1		Answer the following: (10 X 02 = 20 Marks)	
	(a)	Explain the Slant transform.	2M
	(b)	Define Sampling and Quantization.	2M
	(c)	Explain the selective filtering.	2M
	(d)	Explain the use of histogram statistics for image enhancement.	2M
	(e)	What are the advantages of Image Restoration?	2M
	(f)	What are the different sources of degradation?	2M
	(g)	What is the Need for Compression?	2M
	(h)	What is Wavelet Coding?	2M
	(i)	Define the term Dilation.	2M
	(j)	Write short notes on color transform.	2M

PART – B

(Answer all the questions: 05 X 10 = 50 Marks)

2		Discuss briefly the following: (i) Neighbors of pixels, (ii) Connectivity.	10M
		OR	
3	(a)	(i) How an image is represented digitally? (ii) Explain image resolution.	5M
	(b)	List and explain the properties of Walsh Transform.	5M
4		Explain in detail about Image Smoothing using Frequency domain filters.	10M
		OR	
5		Explain about Histogram Processing.	10M
6	(a)	Derive transfer function of least square filtering technique for image restoration.	5M
	(b)	Explain the model of image degradation process.	5M
		OR	
7	(a)	Write about Constrained Least Squares filtering.	5M
	(b)	How wiener filter is used for image restoration? What are the limitations of it?	5M
8		Explain the following: (i) Hoffman coding, (ii) Run-length coding.	10M
		OR	
9	(a)	Explain the concept of bit plane coding method.	5M
	(b)	Explain about lossy and lossless predictive coding.	5M
10		Discuss the basic morphological algorithm for boundary extraction.	10M
		OR	
11		Explain the following: (i) Color fundamentals, (ii) Color image compression.	10M

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