Code No: **R1641042** **R16** **Set No. 1**

IV B.Tech I Semester Regular/Supplementary Examinations, Jan/Feb - 2022

DIGITAL IMAGE PROCESSING

(Common to Electronics & Communication Engineering and Electronics & Instrumentation Engineering and Electronics & Computer Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
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PART–A *(14 Marks)*

1.	a)	Write the applications of KL transform.	[3]
	b)	What is the need of image enhancement?	[2]
	c)	Write short notes on median filter.	[3]
	d)	What is the function of Mapper in image compression system?	[2]
	e)	What is meant by image segmentation?	[2]
	f)	What is meant by pseudocolor processing?	[2]

PART–B *(4x14 = 56 Marks)*

2.	a)	Briefly explain about image acquisition using single sensor and sensor arrays.	[7]
	b)	Discuss about Hadamard transform and write the properties of it.	[7]
3.	a)	Explain the following: (i) Log Transformation (ii) Power Law Transformation	[7]
	b)	Discuss about image sharpening using Butterworth highpass filters.	[7]
4.	a)	List out and sketch the probability density functions of various noise models for image processing applications.	[7]
	b)	Explain about Minimum Mean Square Error filtering and write its advantages.	[7]
5.	a)	Discuss about lossless image compression using Predictive coding.	[7]
	b)	What is image pyramid? Explain how it is created.	[7]
6.	a)	Explain about point detection in an image.	[7]
	b)	Discuss about Boundary Extraction and Hole Filling using Morphological algorithms.	[7]
7.	a)	Explain in detail about RGB color model.	[7]
	b)	Explain the fundamentals of image segmentation based on color.	[7]