Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Sixth Semester B.Tech Degree Regular and Supplementary Examination June 2023 (2019 Scheme)

Course Code: MRT304

Course Name: DIGITAL IMAGE PROCESSING & MACHINE VISION

Max. Marks: 100 **Duration: 3 Hours**

PART A

Answer all questions, each carries 3 marks. Marks

1		Elucidate on quantization.	(3)
2		Explain the three types of adjacency relationship between pixels.	(3)
3		Differentiate between image enhancement and restoration.	(3)
4		What is inverse filtering?	(3)
5		Explain redundancies in image compression.	(3)
6		Draw the block diagram of wavelet encoder and explain.	(3)
7		How can image be segmented using thresholding?	(3)
8		Differentiate between single thresholding and multilevel thresholding.	(3)
9		Evaluate high and low level vision.	(3)
10		Write a short note on illumination.	(3)

PART B

Answer any one full question from each module, each carries 14 marks.

Module I

11	a)	What is histogram equalization? Discuss in detail about the procedure involved in histogram matching.	(10)
	b)	What is the purpose of image averaging?	(4)

OR

12		With necessary diagram explain how an analog image is converted into digital image.	(14)

Module II

13	a)	Explain least mean square filtering for image restoration.	(10)
	b)	Explain about Gaussian noise.	(4)

OR

14		Explain in detail about the methods for smoothing the image in frequency domain	(14)

Module III

15	a)	What is lossless predictive coding? Explain.	(7)
	b)	Write a note on digital image watermarking.	(7)

OR

16		What is the need for image compression? Explain image compression standards in detail.	(14)

Module IV

17		Explain in detail any two boundary representation schemes and illustrate with examples.	(14)

OR

18	a)	Explain region-based segmentation technique.	(10)
	b)	Write a note on regional descriptors.	(4)

Module V

19	a)	With a neat sketch explain CCD camera and its purpose.	(10)
	b)	List the applications of machine vision.	(4)

OR

20	a)	Summarise on classification of machine vision.	(6)
	b)	Explain in detail about image acquisition and digitization in machine vision.	(8)

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