Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Sixth Semester B.Tech Degree (R,S) Examination May 2024 (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		Distinguish 4 and 8 neighbors of a pixel.	(3)
2		Write a short note on basic grey level transformation	(3)
3		Elucidate the concept of inverse filtering.	(3)
4		Explain the block diagram of image degradation/restoration model.	(3)
5		Define pixel of an image	(3)
6		Define gradient of an image	(3)
7		Summarize on boundary representation. Differentiate external representation and internal representation	(3)
8		Describe the image segmentation and applications of image segmentation	(3)
9		Describe the fundamental steps in image digitization	(3)
10		Summarize on the classification of machine vision	(3)

PART B

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

Module I

11	a)	Elucidate the concept of sampling and quantization of image	(7)
	b)	Elucidate about the principle of image enhancement using Histogram equalisation	(7)

OR

12	a)	Formulate the Walsh transform basis for N=4.	(14)

Module II

13	a)	Evaluate on constrained least mean square filtering.	(14)

OR

14	a)	Discuss image restoration process based on Minimum mean square error filtering	(14)

Module III

15 a) Explain bit plane coding (7)

b) Illustrate LZW coding with suitable example. (7)

OR

16 a) Illustrate wavelet coding image with neat sketches. (14)

Module IV

17 a) Evaluate on boundary descriptors (14)

OR

18 a) Explain the following (14)

a) Edge detection

b) Thresholding

Module V

19 a) With neat sketch explain CCD camera and its purpose. (7)

b) Interpret in detail about the steps in feature extraction (7)

OR

20 a) Explain machine vision and also write a detailed description about low level and high level vision (7)

b) A digitization process is often used to convert analog data into numerical representation'. Examine the statement (7)

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