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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Sixth Semester B.Tech Degree Regular and Supplementary Examination July 2021

Course Code: MR304

Course Name: DIGITAL IMAGE PROCESSING AND MACHINE VISION

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all the questions, each carries 5 marks.

		Marks
1	Narrate about mach band effect.	(5)
2	Illustrate the principle of median filtering with suitable example.	(5)
3	Elucidate the concept of inverse filtering.	(5)
4	Define compression ratio. Differentiate lossy and loss less compression.	(5)
5	What are Regional descriptors? Explain briefly.	(5)
6	Elaborate the different edge models.	(5)
7	List any 4 applications of Machine vision systems.	(5)
8	Enumerate the various types of illumination.	(5)

PART B

Answer any three questions, each carries 10 marks.

9	Obtain the Walsh transform basis for $N=4$.	(10)
10	Summarize the following concepts i. Image subtraction ii. Image averaging.	(10)
11	a) Explain the concept of blind image restoration. b) Discuss image restoration process based on Minimum mean square error filtering.	(4) (6)
12	Illustrate JPEG image compression with neat sketches,	(10)
13	a) With reference to a digital image, describe the following terms a) Neighbour hood b) Adjacency b) Illustrate LZW coding with suitable example.	(5) (5)

PART C

Answer any two questions, each carries 15 marks.

- 14 a) Illustrate how Prewitt operator can be used in edge detection. (5)
b) With suitable sketches describe chain codes for boundary representation. (10)
- 15 a) What is thresholding? Illustrate the concept of Global thresholding. (7)
b) Explain any two boundary descriptors used in image processing. (8)
- 16 a) Explain the principle of image acquisition and digitization. (7)
b) With neat sketches explain CCD camera and its working principle. (8)
- 17 a) Briefly discuss the operating principle of CID. (7)
b) Explain how feature extraction is carried out in image processing. (8)
