



R20 Regulation

Subject code: 3P4GB

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech IV Semester Supplementary Examinations, February 2024

INTRODUCTION TO COMPUTER VISION (CSE (AI & ML))

Maximum Marks: 70

Date: 19.02.2024 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10x2M=20 Marks)		CO	Bloom Tx
1	What are the different components of human vision system?	CO1	L1
2	What is a range image?	CO1	L1
3	Define grey-level transformations.	CO2	L1
4	How are statistical operations used in image processing?	CO2	L1
5	What are the three stages of the Canny Edge detector?	CO3	L1
6	What is morphological operation?	CO3	L1
7	Why is labeling regions reasoning important in computer vision applications?	CO4	L1
8	What is meant by decision functions?	CO4	L1
9	Define interpixel redundancy.	CO5	L1
10	What is image compression?	CO5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)			
11	A. Describe the process of real-time image capture. (5M) B. Write short notes on multi-spectral rendition in presentation of images. (5M)	CO1	L3 L3
OR			
12	A. Explain the role of calibration in image acquisition. (5M) B. Explain the principles of 3D imaging and its applications in various fields. (5M)	CO1	L2 L2
13	A. Explain the use of templates and convolution in spatial operations. (5M) B. Discuss color convolution and its significance in processing color images. (5M)	CO2	L2 L3
OR			
14	A. Explain the concepts of morphing, warping, and fading in image transformation. (5M) B. Explore some window operations used in image processing. (5M)	CO2	L2 L3
15	A. Describe the basic morphological operations used in image processing. (5M)	CO3	L3

	B. Compare and contrast first-order and second-order edge detection methods. (5M)		L3
	OR		
16	A. Explain the Hough Transform as a method for shape detection. (6M) B. Provide examples of shapes that can be detected using Hough Transform. (4M)	CO3	L2 L3
17	A. Briefly describe the role of networks as spatial descriptors. (5M) B. Explain the concept of optical character recognition (OCR) in pattern recognition. (5M)	CO4	L2 L2
	OR		
18	Discuss various approaches of decision-making process in pattern recognition and list their advantages. (10M)	CO4	L3
19	A. Explain Run Length Encoding (RLE) for image compression. (5M) B. Describe the use of quad-trees in image compression. (5M)	CO5	L2 L3
	OR		
20	A. Describe the principles of fractal compression for images. (5M) B. Compare the fractal compression technique with other compression methods. (5M)	CO5	L3 L3