*R20 Regulation* *Subject code: 3P4GB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

**B.Tech IV Semester Regular/Supplementary Examinations, September 2023**

# INTRODUCTION TO COMPUTER VISION

**(CSE (AI&ML))**

***Maximum Marks: 70*** Date:15.09.2023 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)

1 What is Computer Vision?
2 What are the different factors that affect image presentation?
3 Define histogram equalization.
4 What is meant by thresholding error?
5 How are edge detection and segmentation related?
6 What are morphological operations?
7 Write the difference between facts and rules in the context of image analysis.
8 What is the significance of the decision-making process in pattern recognition?
9 Name different image compression methods.
10 Define Morphing.

## Part-B

Answer All the following questions. (5X10M=50Marks)

11 A. Describe the role of color standards in image processing. (5M)
B. Explain the significance of DVD and video disks in image acquisition. (5M)

OR

12 A. Compare the various image acquisition devices video cameras, scanners and satellite imagery. (5M)
B. Explain how color can enhance monochrome output in image presentation. (5M)

13 A. Explain the principle of grey-level transformations in image processing. (5M)
B. Explain the potential consequences of thresholding errors in image segmentation. (5M)

OR

14 Discuss the 2D geometric transformations. (10M)

15 Provide a brief overview of the followings:
i) Canny Edge Detection. (5M)
ii) Pyramid Edge Detection. (5M)

OR

16 Describe Bresenham's Algorithm for identifying and rendering basic shapes in digital images. (10M)

17 A. Explain the process of flat surface and straight edge labeling in image analysis. (5M)
B. Discuss the strategies for labeling the curved lines and regions in image processing. (5M)

OR

18 A. Describe the concept of strategic learning in image processing. (5M)
B. Explain how networks can serve as spatial descriptors in image analysis. (5M)

19 Discuss in detail the various types of image compression techniques. (10M)

OR

20 Explain the statistical compression in image processing and list its advantages and limitations. (10M)