

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VII EXAMINATION – WINTER 2025****Subject Code:3171614****Date:01-12-2025****Subject Name: Computer Vision****Time: 10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

- Q.1** (a) Discuss RGB image representation. **03**
 (b) Discuss image transformation. **04**
 (c) Discuss affine transform. **07**
- Q.2** (a) Compare mean and median filters. **03**
 (b) Discuss applications of Fourier Transform. **04**
 (c) Discuss steps and perform histogram equalization for following data **07**

Grey level value	0	1	2	3	4	5	6	7
No. of Pixels	10	8	9	2	14	1	5	2

OR

- (c) Discuss steps involved to develop a computer vision application which can identify traffic signal violations **07**
- Q.3** (a) Discuss edge detection techniques. **03**
 (b) Discuss active contour. **04**
 (c) Discuss HOG feature descriptor. **07**
- OR**
- Q.3** (a) Discuss morphological operators. **03**
 (b) Discuss shape descriptors. **04**
 (c) Discuss SIFT feature descriptor. **07**
- Q.4** (a) Discuss radial lens distortion. **03**
 (b) Discuss perspective camera models. **04**
 (c) Discuss watershed segmentation technique. **07**
- OR**
- Q.4** (a) Discuss curve detection. **03**
 (b) Discuss pinhole camera model. **04**
 (c) Discuss region splitting and merging for segmentation. **07**
- Q.5** (a) Discuss low pass filter. **03**
 (b) Discuss the Kalman filter. **04**
 (c) Write a short note on optical flow. **07**
- OR**
- Q.5** (a) Discuss high pass filter. **03**
 (b) Discuss object recognition. **04**
 (c) Write pseudo code for face recognition system. **07**
