MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

VII SEMESTER B.TECH. (INFORMATION TECHNOLOGY | COMPUTER AND COMMUNICATION TECHNOLOGY | COMPUTER SCIENCE AND ENGINEERING)

MAKE-UP EXAMINATION, 2022

SUBJECT: PROGRAM ELECTIVE- IV COMPUTER VISION [ICT 4031]
REVISED CREDIT SYSTEM
(/ /2022)

MAX. MARKS: 20

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data if any, may be suitably assumed.

1A. Using Harris corner detection algorithm identify whether X in the image block given in Table Q.1A.1 is a corner point? Use central difference to calculate the derivative. Make use of Gaussian window function given in Table Q.1A.2 **5**

Table Q.1A.1

5	5	5	5	5
5	100	300	50	5
5	300	**X =5**	300	5
5	50	300	100	5
5	5	5	5	5

Table Q.1A.2

2	4	2
4	8	4
2	4	2

1B. Find magnitude and orientation for the image block given in Table Q.1B. **3**

Table Q.1B: Image Block			
10	20	10	25
40	50	10	20
5	10	15	20
35	40	50	40

1C. With a suitable example, explain the concept of zero-crossing used in Laplacian of Gaussian edge detector. **2**

2A. The data set contains 200 face images of 10 individuals. For each individual, 20 different face images are stored in the data set. The size of each image in the data set is 250 x 250. Explain the process of the training phase in face recognition by specifying the size of the matrix (image) in each step. **5**

2B. Suppose a point from left camera is given, how to find the corresponding point in the right camera? Is it possible to find the epi-polar line equation in the right camera? Discuss in detail. **3**

2C. Two points, A and B exists, with A having coordinates (0,0) and representing the positive sample and B with coordinate (4,4) representing the negative sample. Can a SVM separate this. If so, find the equation of the linear line with details of points representing support vectors, slope and intercept. **2**