	Reg. No.										
ANIPAL INSTITUTE OF TECHNOLOGY											

(A constituent unit of MAHE, Manipal)

## DEPARTMENT OF MECHATRONICS V SEMESTER B.TECH. (MECHATRONICS) END SEMESTER EXAMINATIONS, [Dec] [2021] SUBJECT: MACHINE VISION AND IMAGE PROCESSING

## SUBJECT CODE: MTE 4075

## DATE:17/12/2021

Time: 75+10 MINUTES

MAX. MARKS: 20

## Instructions to Candidates:

✤ Answer ALL the questions.

✤ Missing data if any can be suitably assumed.

PART B									
Q. No	Question	Μ	CO/ CL O	PO	LO	BL			
1A.	Fig Q1A. (a, b, c): Hand images, (d, e, f): End points of fingers, (g) Trajectory generation Implement the algorithm to select the end points of the fingers for the images shown in the Fig Q1A (a, b, c). Propose the technique with detailed steps to generate the trajectory as shown in the Fig Q1A. (g)	5	3,4	4	3,4	6			

1B.	Consider the image f as shown in the Fig Q1B. Assume that it is to be convolved with the mask m, to produce the output image g. Compute g9 and g41. $\begin{array}{c ccccccccccccccccccccccccccccccccccc$	3	1	1	1,2	3
1C.	Implement the algorithm to make a black and white Rubik's cube as a 3D joystick/mouse.	2	1	4	1,2	5
2A.	Elaborate the face recognition method using PCA with mathematical steps.			4,5	6,1 2	5
2B.	Identify two image denoising techniques based on the noise content. Does the performance of the algorithm depend on the correct choice of noise level estimate? Draw conclusions on the techniques which would work better for a particular type of noise?		1	1	1	4 , 5
2C.	Implement the algorithm to replace a picture in a magazine or a book with a different image or video.		1	4,5	2	6