

**MASTER OF VOCATION**  
**Robotics and Automation**  
**Subject: Machine Vision System**  
**Subject Code: CSE-902**  
**Semester: Fourth**  
**July 2022**  
**Theory (External): 70 Marks**  
**Time: 03 Hours**

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**Instructions to the Students**

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 2 marks.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 10 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

**Roll Number**

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**SECTION –A (OBJECTIVE TYPE QUESTIONS)**  
(10x2=20 Marks)

- A. What are the common imaging device used for robot vision systems?
- B. Define Segmentation.
- C. What is Thresholding?
- D. Functions of machine vision system.
- E. Which operating system should be used with ROS?
- F. What is meant by Medial axis and give one example?
- G. Define object recognition in machine vision.
- H. What is the difference between object recognition and object detection?
- I. List various tools present in ROS.
- J. ROS is for robots as ..... for computers.

**SECTION –B (ESSAY TYPE QUESTIONS)**  
(5x10=50 Marks)

- 1. Explain various tools present in ROS in detail.
- 2. Write an algorithm for object tracking.
- 3. Explain segmentation using a moving camera.
- 4. Discuss geometric properties of image formation and processing.
- 5. What is camera calibration? Explain its different types.
- 6. Write short note on
  - a) Open CV
  - b) Video tracking.
- 7. Explain various elements of visual perception.
- 8. Explain different components of an object recognition system using block diagram.

\*\*\*END OF PAPER\*\*\*