

6TH SEM. /MECHANICAL/ 2024(W)

TH4 Industrial Robotics & Automation

Full Marks: 80

Time- 3 Hrs

**Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks**

1. Answer **All** questions 2 x10
 - a. What is the function of robot controller?
 - b. State the use of sensor.
 - c. Define Robot.
 - d. What is end effector?
 - e. State the function of stepper motor.
 - f. What is servomotor?
 - g. Write down two applications of robot sensor.
 - h. What is VAL programming?
 - i. Define proximity sensor.
 - j. Define teach pendant programming.

2. Answer **Any Six** Questions 5 x 6
 - a. Discuss about the safety measures in robotics.
 - b. Describe a spray painting booth for painting automobiles cars using a suitable spray painting robot.
 - c. Differentiate between open loop and closed loop controller.
 - d. Define Joint. Explain about the various joints of robot.
 - e. Find out x_1 and y_1 of a 2DOF 2- D manipulator of a robot where θ_1 and θ_2 are the joint angles.
 - f. What are the advantages and disadvantages of robots?
 - g. What are the principle and application of piezo electric sensor?

- Answer **Any Three** Questions
3. Explain application of Robot vision system. 10
4. Describe working principle and construction of Videocon camera. 10
5. Write down the robotic applications in manufacturing industry. 10
6. Describe classification of Robots 10
7. Explain about the hydraulic actuators system. 10