

6TH SEM./MECHANICAL/2022(S)

TH-4 Industrial Robotics And 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 x 10
 - a. Define accuracy of Robot.
 - b. What is Servo motor?
 - c. Write down functions of Sensor.
 - d. State Backward Kinematics.
 - e. State the use of Teach Pendent Robot.
 - f. What is Work Envelope?
 - g. State the use of Auto Pass.
 - h. What is Piezoelectric Actuator?
 - i. What is Controller?
 - j. What do you mean by DOF?
2. Answer **Any SIX** Questions 6 x 5
 - a. Explain about the motion control of the Robot.
 - b. Explain about Optical Sensor.
 - c. Define End Effectors. Explain about various types of End Effectors.
 - d. Discuss about the Strain Gauge sensor.
 - e. Discuss about safety measurement of the robot.
 - f. Find out X1 and Y1 of a 2 DOF 2-D manipulator of robot where the both 1 & 2 angels are joints.
 - g. Describe different types of maintenance of machine tools.
3. Write down different robotic languages. 10
4. Draw the line diagram of Pneumatic actuation system and explain about it in detail. 10
5. Explain about Inductive Sensor. 10
6. Discuss about the Robot Anatomy with neat sketches. 10
7. Write down the application of robotic application in manufacturing industry. 10