

CBCS SCHEME



17MT71

Seventh Semester B.E. Degree Examination, July/August 2022 Industrial Robotics

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain the brief history of robotics. (10 Marks)
b. List the three types of drive systems used in robots and give comparison between them. (10 Marks)

OR

- 2 a. Define the following : i) Automation ii) Robotics and industrial robot
iii) Special resolution iv) Accuracy v) Repeatability. (10 Marks)
b. With neat sketch, explain different configurations of robots. (10 Marks)

Module-2

- 3 a. List different types of sensors used in robotics and explain tactile and proximity sensors. (10 Marks)
b. Explain different considerations in gripper selection and design. (10 Marks)

OR

- 4 a. What is D.H convention? Describe with neat diagram. (10 Marks)
b. Explain in brief : i) Vacuum grippers ii) Mechanical grippers. (10 Marks)

Module-3

- 5 a. Explain the limitations and advantages of lead through programming. (10 Marks)
b. Explain the functions of machine vision system with neat block diagram. (10 Marks)

OR

- 6 a. Describe different goals of Artificial Intelligence (AI). (10 Marks)
b. Explain the different applications of machine vision system in robotics. (10 Marks)

Module-4

- 7 a. Explain different techniques of work cell layout control. (10 Marks)
b. Describe with neat sketch standard robot cell layouts. (10 Marks)

OR

- 8 a. Explain any two applications of robot in material handling applications. (10 Marks)
b. List out and describe different considerations in choosing the robot for material handling applications. (10 Marks)

Module-5

- 9 a. Explain compliance and Remote Centre Compliance (RCC). (10 Marks)
b. Explain in brief part presentations methods in assembly operations. (10 Marks)

OR

- 10 a. How robots can be used to perform inspection? Explain. (10 Marks)
b. Write a note on following processing operations of robot
i) Spot welding ii) Continuous arc welding. (10 Marks)

* * * * *

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.