CBCS SCHEME

USN | | | | | | | | | | |

18SM62

Sixth Semester B.Tech. Degree Examination, June/July 2023
Robotics and Automation

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 a. Briefly explain the basic elements of an automated system with neat sketch. **(10 Marks)**

b. Explain the differences between continuous and discrete control computer process control. **(10 Marks)**

OR

2 a. Explain any 3 hardware components required for automation and process control. **(10 Marks)**

b. Explain the comparison between the process industries and discrete manufacturing industries. **(10 Marks)**

Module-2

3 a. Briefly explain the fundamentals of automated production lines with sketch. **(10 Marks)**

b. Discuss the fundamentals of automated assembly system with neat sketch. **(10 Marks)**

OR

4 a. Discuss automated identification methods. **(10 Marks)**

b. Explain the AIDC technologies and also its importance. **(10 Marks)**

Module-3

5 a. Write short notes on: i) Robot control systems ii) End effectors. **(10 Marks)**

b. Explain repeatability and accuracy with respect to industrial robots. **(10 Marks)**

OR

6 a. Explain Asimov's law of robotics. **(10 Marks)**

b. Briefly explain the dynamic stability process for industrial robots with sketch. **(10 Marks)**

Module-4

7 a. Briefly explain velocity sensors and tactile sensors for robots with neat sketch. **(10 Marks)**

b. List the different types of position sensors used. Explain in detail. **(10 Marks)**

OR

8 a. Explain the rotation and translation motion for robots with equations. **(10 Marks)**

b. Discuss forward and inverse kinematics with respect to robots. **(10 Marks)**

Module-5

9 a. Explain the steps required for robot programming language. **(10 Marks)**

b. Discuss in detail the problems related to robot programming languages. **(10 Marks)**

OR

10 a. Explain in detail the various automation subtasks in OLP systems. **(10 Marks)**

b. Describe briefly the central issues in connection to OLP systems. **(10 Marks)**

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