



## Seventh Semester B.E./B.Tech. Degree Examination, June/July 2025 Automation and Robotics

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Define Automation. Explain basic elements of an automated system. (10 Marks)
- b. Explain the levels of automation process. (10 Marks)

OR

- 2 a. Explain continuous control system. (10 Marks)
- b. Explain with neat sketch Digital-to-Analog conversion. (10 Marks)

### Module-2

- 3 a. Explain fundamentals of automated production line. (10 Marks)
- b. Explain the analysis of transfer lines. (10 Marks)

OR

- 4 a. Explain the linear transfer system. (10 Marks)
- b. Explain : (10 Marks)
  - i) Barcode Technology
  - ii) Radio frequency identification.

### Module-3

- 5 a. Explain with neat sketch Robot anatomy. (10 Marks)
- b. List robot application in industries. (10 Marks)

OR

- 6 a. Explain : i) Accuracy ii) Repeatability. (10 Marks)
- b. Explain Asimov's law of robotics. (10 Marks)

### Module-4

- 7 a. Explain with neat sketch hydraulic actuators. (10 Marks)
- b. Explain with neat sketch stepper motors. (10 Marks)

OR

- 8 a. Explain : i) Tactile sensors ii) Proximity Sensors. (10 Marks)
- b. Explain forward and inverse kinematics. (10 Marks)

### Module-5

- 9 a. Explain in levels of robot programming. (10 Marks)
- b. What are the requirements of a robot programming language? (10 Marks)

OR

- 10 a. Explain off line programming systems. (10 Marks)
- b. Explain in central issues in OLP systems. (10 Marks)

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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.