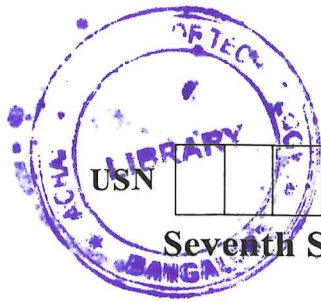




CBCS SCHEME

21ME71

Seventh Semester B.E./B.Tech. Degree Examination, June/July 2026 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. Draw a neat block diagram of levels of Automation, showing its elements and explain their functions. (10 Marks)
- b. Enumerate the error detection and recovery in an automated system. (10 Marks)

OR

- 2 a. What is the difference between a continuous variable and a discrete variable? (10 Marks)
- b. Briefly describe the three phases of the analog to digital conversion. (10 Marks)

Module-2

- 3 a. With brief explanation state the three basic control functions that must be accomplished to operate an automated production line with storage buffer between the two stages. (10 Marks)
- b. Enumerate the parts selector and orientation briefly. (10 Marks)

OR

- 4 a. Draw a neat diagram of any two fundamentals of automated assembly systems showing its elements and explain their functions. (10 Marks)
- b. Name the categories of AIDC technologies. Enumerate briefly. (10 Marks)

Module-3

- 5 a. Name the four categories of a Robot Control System. Enumerate briefly. (10 Marks)
- b. What is an Industrial Robot? Explain common robot configuration with a neat diagram. (10 Marks)

OR

- 6 a. Enumerate the wrist configuration of a robot with neat sketch. (10 Marks)
- b. What are the characteristics of Robot Applications? (10 Marks)

Module-4

- 7 a. Explain the general categories of Robotic sensors and briefly explain any one of them. (10 Marks)
- b. Explain the drives and control of hydraulic system for a robot arm. (10 Marks)

OR

- 8 a. Explain the manipulator of six possible lower pair joints of link description. (10 Marks)
- b. Explain the proximity sensors with a neat diagram. (10 Marks)

Module-5

- 9 a. Explain the 3 levels of Robot Programming. (10 Marks)
- b. Explain the requirement of Robot Programming Language. (10 Marks)

OR

- 10 a. Explain the following of central issues in OLP system :
i) User interface ii) Kinematic emulation iii) Path-Planning emulation (10 Marks)
- b. List down and explain briefly the various automating subtasks in an off-line programming system. (10 Marks)
