



# CBCS SCHEME

15ME563

## Fifth Semester B.E. Degree Examination, July/August 2021 Automation and Robotics

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions.

- 1 a. Define Automation. Explain various types of Automation. (10 Marks)  
b. Explain automated migration strategy. (06 Marks)
- 2 a. What is an flexible manufacturing system? Explain any three types FMS. (12 Marks)  
b. What are the applications of flexible manufacturing systems? (04 Marks)
- 3 a. What are the components of robot? Explain briefly. (06 Marks)  
b. With neat sketch, explain any three types of configurations of robots. (10 Marks)
- 4 a. Explain the following : (i) Work volume (ii) Accuracy (iii) Spatial resolution (iv) Repeatability. (08 Marks)  
b. Sketch and explain any one type of gripper. (08 Marks)
- 5 Explain any four controllers used in robotics system along with their transfer function. (16 Marks)
- 6 a. Explain with diagram, any two types of potentiometers. (08 Marks)  
b. With neat sketch, explain hydraulic actuator system. (08 Marks)
- 7 a. Explain proximity sensors and their applications with neat diagram. (10 Marks)  
b. Explain with neat sketch tactile sensors. (06 Marks)
- 8 a. Explain the basic functions of machine vision system with sketch. (12 Marks)  
b. What are the applications of machine vision system? (04 Marks)
- 9 a. Explain briefly Robot Intelligence. (06 Marks)  
b. Describe a locomotion and navigation system. (10 Marks)
- 10 a. Explain any three Artificial Intelligence techniques. (12 Marks)  
b. Define Artificial Intelligence and Robotics. (04 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.