CBCS SCHEME

USN ☐☐☐☐☐☐☐☐☐☐

17MT661

Sixth Semester B.E. Degree Examination, Feb./Mar. 2022
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. Define Robot. Explain different types of Robot. **(10 Marks)**
   b. Explain the various generation of Robots. **(10 Marks)**

OR

2 a. Briefly explain different configurations of Robots. **(10 Marks)**
   b. What are degrees of freedom? With a neat sketch, explain the degrees of freedom associated with body and wrist of a polar coordinate robot. **(10 Marks)**

Module-2

3 a. Describe the various types of drive systems for Robots. **(10 Marks)**
   b. With a neat sketch, explain the working of Range sensor and its applications. **(10 Marks)**

OR

4 a. Describe the working of various types of magnetic sensors. **(10 Marks)**
   b. What is path planning? Describe the classification of Robots based on path control. **(10 Marks)**

Module-3

5 a. What are Grippers? Explain its general classification. **(10 Marks)**
   b. Discuss the design consideration of Grippers. **(10 Marks)**

OR

6 a. What are End effectors? Explain different types. **(10 Marks)**
   b. Explain the concept of force control in Robotics manipulator. **(10 Marks)**

Module-4

7 a. With a neat block diagram, explain the various elements of an automated system. **(10 Marks)**
   b. Explain the concept of safety in Industrial Automation. **(10 Marks)**

OR

8 a. With a neat sketch, explain three levels of safety sensor systems. **(10 Marks)**
   b. Explain the different types of automation systems and their characteristics. **(10 Marks)**

Module-5

9 a. Explain the principles of material handling. **(10 Marks)**
   b. Explain the various storage systems in Industrial Automation. **(10 Marks)**

OR

10 a. Briefly explain material loading and unloading applications. **(10 Marks)**
   b. Explain various types of Material Handling Equipments. **(10 Marks)**

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