CBCS SCHEME

17MT71

USN ☐☐☐☐☐☐☐☐☐☐

Seventh Semester B.E. Degree Examination, Feb./Mar. 2022
Industrial 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 the types of Automation. **(10 Marks)**
     b. Define Robotics. Explain the fundamentals of Robot Anatomy. **(10 Marks)**

OR

2   a. Explain different types of drive system used in Robot. **(10 Marks)**
     b. Briefly explain the application areas of Robotics. **(10 Marks)**

Module-2

3   a. Explain the Configuration of Robot Controller. **(10 Marks)**
     b. Briefly explain the considerations in Robot Gripper Selection and Design. **(10 Marks)**

OR

4   a. Explain Proximity and Range Sensors used in Robotics. **(10 Marks)**
     b. Explain the desirable features of sensors. **(10 Marks)**

Module-3

5   a. Explain functions of machine vision with neat diagram. **(10 Marks)**
     b. With a neat sketch, explain cross section of a Vidicon tube. **(10 Marks)**

OR

6   a. Explain Capabilities and Limitations of Lead through programming. **(10 Marks)**
     b. Briefly explain the Goals of AI Research. **(10 Marks)**

Module-4

7   a. Briefly explain the different types of Robot Work Cell layout. **(10 Marks)**
     b. Explain the modification in work cell design. **(10 Marks)**

OR

8   a. Explain any two loading and unloading applications of robot in production industries. **(10 Marks)**

     b. Write short notes on:
        (i)   Robot Cycle Time Analysis
        (ii) General considerations in Robot Material Handling **(10 Marks)**

Module-5

9   a. Explain the concept of inspection automation. **(10 Marks)**
     b. Explain the automatic processing operation of spot welding and arc welding using robot. **(10 Marks)**

OR

10   a. Explain the requirement of robotic system in spray coating and benefits of robot spray coating. **(10 Marks)**
     b. List and explain robot assembly operations. **(10 Marks)**

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