CBCS SCHEME

USN | | | | | | | | | | |

18MT71

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. What is Automation and Robotics? Correlate them. **(04 Marks)**
    b. What are the types of Automation? Correlate them. **(12 Marks)**
    c. What are the contributions of science fiction movies in the field of Robotics? **(04 Marks)**

OR

2   a. Explain in detail how robotics has evolved over decades. **(08 Marks)**
    b. Explain what is current Industrial Robots market distribution by 2020 and what are the future prospects. **(06 Marks)**
    c. State Asimov's laws of Robots and what are the problems of violating it? Discuss. **(06 Marks)**

Module-2

3   a. With sketch, explain various physical configurations of robot. **(12 Marks)**
    b. List out four types of robot controls. Explain the characteristics of different robot control systems. **(08 Marks)**

OR

4   a. What are the three features related to precision of movement? Explain them with respect to Robots. **(07 Marks)**
    b. Define sensor. Explain the basic types of sensors in robotics. **(09 Marks)**
    c. What are the applications of robot? **(04 Marks)**

Module-3

5   a. Explain with characteristics of proportional, integral and proportional-integral-derivative controller. **(10 Marks)**
    b. Explain with sketch, potentiometer and encoder sensors. **(10 Marks)**

OR

6   a. Briefly explain pneumatic and hydraulic actuators with its advantages and disadvantages. **(10 Marks)**
    b. With the help of a sketch, explain the construction and principle of working of stepper motor. Discuss the capabilities of it compared to others. **(10 Marks)**

Module-4

7   a. List and explain the desirable properties of sensors. **(07 Marks)**
    b. What are the uses of sensors in robotics? **(06 Marks)**
    c. What are the types of proximity sensor? Explain any one type of proximity sensor. **(07 Marks)**

OR