CBCS SCHEME

USN | | | | | | | | | |

18MT71

Seventh Semester B.E. Degree Examination, Dec.2023/Jan.2024
Industrial Robotics

Time: 3 hrs. Max. Marks: 100

Note: ***Answer any FIVE full questions, choosing ONE full question from each module.***

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.

Module-1

1 a. Define Robotics. Explain the components of Robotics System. (10 Marks)
b. Define Automation. With diagram, explain the types of Automation. (10 Marks)

OR

2 a. Briefly discuss the history of Robotics. (10 Marks)
b. State three laws of Robotics by Asimov. Explain Robotics in Science Fiction. (10 Marks)

Module-2

3 a. Illustrate Anatomy of an Industrial Robot, with neat sketch. (10 Marks)
b. Briefly explain the different Robot drive systems. (10 Marks)

OR

4 a. Discuss Precision of movement with its features. (10 Marks)
b. Explain different configuration of Robot with respect to work volume. (10 Marks)

Module-3

5 a. Define Control System. Explain Control System Components, with a block diagram. (10 Marks)
b. Briefly explain the desirable features of Sensors. (10 Marks)

OR

6 a. Illustrate the working of a Stepper Motor. (10 Marks)
b. With a neat sketch, explain the working of an Optical encoder. (10 Marks)

Module-4

7 a. Explain with a neat sketch, the Proximity and Range Sensors. (10 Marks)
b. Define a Transducer. Classify and explain types of transducers (10 Marks)

OR

8 a. Explain the Robot applications of Machine vision. Discuss the three categories. (10 Marks)
b. Explain in detail sensing and digitizing in Machine vision with techniques used. (10 Marks)

Module-5

9 a. Explain the capabilities and limitations of Lead through methods. (10 Marks)
b. Discuss with an example, Wait, Signal and Delay Commands. (10 Marks)

OR

10 a. Explain the different methods of Robot Programming. (10 Marks)
b. With a neat sketch, explain 3 methods of defining position in space. (10 Marks)

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