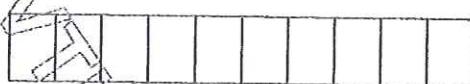


CBCS Scheme

USN



15ME563
14

Fifth Semester B.E. Degree Examination, Dec.2017/Jan.2018 Automation and Robotics

Time: 3 hrs.

Max. Marks: 80

Note: Answer FIVE full questions, choosing one full question from each module.

Module-1

- 1 a. Define automation. Explain the types of automation.
b. List and explain the automation strategies.

(10 Marks)
(06 Marks)

OR

- 2 a. List and explain the reasons for automation.
b. What is FMS? List the benefits of FMS.

(10 Marks)
(06 Marks)

Module-2

- 3 a. Define Robot. Explain the robot anatomy.
b. List the configurations of a robot. Explain any two with sketches.

(06 Marks)
(10 Marks)

OR

- 4 a. With a suitable sketches, briefly explain any two end effectors.
b. Explain with sketches the types of joints used in robots.

(08 Marks)
(08 Marks)

Module-3

- 5 a. Explain the basic concepts of control systems.
b. What is block diagram? Explain its basic elements.
c. List the types of controllers. Explain ON-OFF controller.

(04 Marks)
(04 Marks)
(08 Marks)

OR

- 6 a. Explain different position sensors used in robots.
b. Explain hydraulic and pneumatic actuators.

(08 Marks)
(08 Marks)

Module-4

- 7 a. What are tactile sensors? Explain any two type of tactile sensors.
b. Explain proximity and range sensors.

(10 Marks)
(06 Marks)

OR

- 8 a. Explain sensing and digitizing image data related to machine vision system.
b. Explain image processing and analysis.

(08 Marks)
(08 Marks)

Module-5

- 9 Explain : (i) Mechanical design features.
(ii) Telepresence and related technologies.

(16 Marks)

OR

- 10 a. What is artificial intelligence? Explain the goals of artificial intelligence.
b. Explain artificial intelligence techniques.

(06 Marks)
(10 Marks)

* * * *

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.

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