CBCS SCHEME

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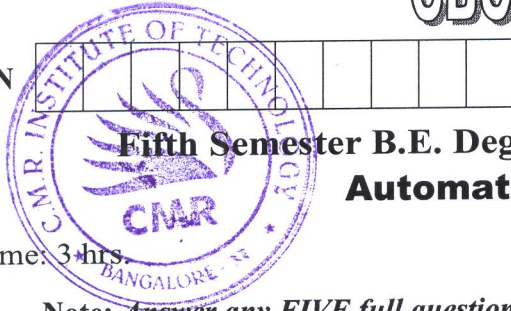
Fifth Semester B.E. Degree Examination, June/July 2023
Automation and Robotics

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 basic elements of an Automated system.	(10 Marks)
	b.	Explain briefly levels of Automation.	(10 Marks)

OR

2	a.	Explain Continuous versus Discrete Control in Automation.	(10 Marks)
	b.	How Electric motors uses as an actuators? Explain briefly with necessary sketch.	(10 Marks)

Module-2

3	a.	Explain following linear transfer system : i) Rotary Indexing Mechanism ii) Geneva Mechanism.	(10 Marks)
	b.	Briefly explain any two automated assembly systems with sketch.	(10 Marks)

OR

4	a.	Explain Hardware elements of the parts delivery system at an assembly workstation.	(10 Marks)
	b.	Write short note on : i) Barcode Technology ii) Radio Frequency Identification.	(10 Marks)

Module-3

5	a.	Define Industrial Robot. Explain common configuration of Robot.	(10 Marks)
	b.	Explain following terms related to Robot : i) Sensors used in Robot ii) Robot control systems.	(10 Marks)

OR

6	a.	Explain briefly various applications of Industrial Robots.	(10 Marks)
	b.	Write note on : i) End effectors ii) Robot Accuracy and Repeatability.	(10 Marks)

Module-4

7	a.	Explain Positions , Orientation and Frames spatial descriptions.	(10 Marks)
	b.	Explain Translational and Rotations Operators.	(10 Marks)

OR

8	a.	Explain Link description of manipulators kinematics in robots.	(10 Marks)
	b.	Explain Actuator space , Joint space and Cartesian space in Industrial Robots.	(10 Marks)

Module-5

9	a.	Explain three levels of Robot Programming.	(10 Marks)
	b.	Explain briefly Robot Programming Language requirements.	(10 Marks)

OR

10	a.	With block diagram, explain Off Line Programming.	(10 Marks)
	b.	Explain Central Issues in OLP systems.	(10 Marks)

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