CBCS SCHEME

BMT755C

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Seventh Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026
Robotics for Industry

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Illustrate with a graphical representation the relationship between fixed, programmable and flexible automation.	10	L2	CO1
	b.	Discuss the Isaac Asimov's three laws of robotics and explain the robotics in science fiction.	10	L3	CO1
		OR			
Q.2	a.	What is Work Volume? Discuss with a neat sketch work volume of Selective Compliance Assembly Robotics Arm (SCARA).	8	L2	CO1
	b.	Briefly explain types of drive systems used in industrial robots.	8	L2	CO1
	c.	Explain the different categories of robots in industrial application.	4	L2	CO1
		Module – 2			
Q.3	a.	Describe with a neat sketch the components of pneumatic drive system.	10	L3	CO2
	b.	Explain how to determine HP of motor and gear ratio in the in robot power system.	10	L2	CO2
		OR			
Q.4	a.	Briefly explain proximity and range sensor with a neat sketch.	10	L2	CO3
	b.	Classify Tactile sensors. With a neat sketch explain the working of force sensors.	10	L1	CO3
		Module – 3			
Q.5	a.	Explain with a neat sketch the working of electronic manipulator.	10	L2	CO3
	b.	Discuss the construction of two-jointed manipulators with a simple sketches.	10	L3	CO3
		OR			
Q.6	a.	Discuss the factors that should be considered in the selection of grippers.	10	L3	CO3
	b.	Explain with neat sketches any five types of grippers.	10	L2	CO3
		Module – 4			
Q.7	a.	Explain the two ways of accomplishing the lead through programming.	10	L2	CO4
	b.	Discuss x-y-z co-ordinate motion of defining the positions in space.	10	L3	CO4
		OR			
Q.8	a.	What is Motion Interpolation? Discuss the circular interpolation method for robots.	10	L2	CO4
	b.	Write short notes on the following with respect to robot programming. i. WAIT, SIGNAL and DELAY ii. Branching.	10	L2	CO4
		Module – 5			
Q.9	a.	Describe with a neat diagram, the basic elements of an automated system.	10	L3	CO5
	b.	Explain the safety in robotics systems and illustrate the three levels of safety.	10	L2	CO5
		OR			
Q.10	a.	Discuss the robot applications in material handling.	10	L3	CO5
	b.	Explain the applications of robots in automatic processing operations.	10	L2	CO5

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