CBCS SCHEME

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BME405D

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2025
Robotics and Automation

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.	Define Industrial Automation. Explain different types of automation.	10	L1	CO1
	b.	Explain determine controllers employed in automated systems.	10	L2	CO1
		OR			
Q.2	a.	Define Robot. Explain various generations of robots.	10	L1	CO1
	b.	Explain degrees of freedom and Asiomov's laws of robotics.	10	L2	CO1
		Module – 2			
Q.3	a.	Explain robot anatomy with neat sketch.	10	L2	CO1
	b.	Explain briefly manipulator kinematics and robot dynamics on robots.	10	L2	CO1
		OR			
Q.4	a.	Explain work volume with considering stroke and reach.	10	L2	CO2
	b.	Explain controller design parameters in robotics.	10	L2	CO2
		Module – 3			
Q.5	a.	List different types of end effectors. Explain mechanical type and effectors used in robots.	10	L2	CO2
	b.	Explain different gripper design considerations in robots.	10	L2	CO2
		OR			
Q.6	a.	Explain tactile sensor with a neat sketch.	10	L2	CO2
	b.	Explain triangulation method of range sensing in range sensors.	10	L2	CO2
		Module – 4			
Q.7	a.	Explain different methods of robot programming.	10	L2	CO3
	b.	Explain requirements of good programming languages in robots.	10	L2	CO3
		OR			
Q.8	a.	Explain manual and powered lead through robot programming.	10	L2	CO3
	b.	Write simple program for pick and place (PNP) activity in robots.	10	L2	CO3
		Module – 5			
Q.9	a.	Mention and explain different types of material handling systems.	10	L2	CO4
	b.	List different types of AIDC methods. Explain barcode technique.	10	L2	CO4
		OR			
Q.10	a.	Explain belt driven conveyor work-part transfer mechanism.	10	L2	CO4
	b.	Define buffer storage. Explain three types of buffer storage methods.	10	L1	CO4

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