

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***M.E DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025***Second Semester**Product Design and Development***PPDE2405 - Industrial Robotics and Expert Systems***Regulations - 2024**Duration : 3 Hrs**Maximum : 100 Marks**PART - A (ANSWER ALL QUESTIONS) (Marks 10*2=20)*

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	What is robot anatomy? List the main components.	L1	1	2
2.	Contrast the industrial robot to the domestic robot in terms of the efficiency.	L2	1	2
3.	What is the function of electro-hydraulic servo valves in robotic drives?	L1	2	2
4.	Select the role of velocity sensing devices in controlling robot motion.	L1	2	2
5.	Mention the purpose of a tactile sensor used in a robot system.	L2	3	2
6.	Identify a simple robotic vision system application that uses pattern recognition.	L3	3	2
7.	How multiple robots can be managed in a single work cell?	L1	4	2
8.	Identify the impact of robot cycle time on industrial productivity.	L3	4	2
9.	Inspect the motion interpolation technique in robotics.	L4	5	2
10.	Infer the basic goals of Artificial Intelligence in robotics.	L2	5	2

*PART - B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)*

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Explain the robot anatomy and its main components with a neat diagram.	L2	1	16
	Or			
	b Describe in detail on the concept of work volume for various configurations in a robotic context.	L2	1	16
12.	a Explain the functions of End-effectors in robots.	L2	2	16
	Or			
	b Describe the role of control valves in pneumatic systems.	L2	2	16
13.	a Illustrate how sensors are used in specific tasks in robotic environment.	L3	3	16
	Or			
	b Show how pattern recognition is applied in a robotic sorting system.	L3	3	16
14.	a Describe a scenario where machine interference occurs in a robot cell.	L3	4	16
	Or			
	b Demonstrate methods to reduce cycle time in a robot work cell.	L3	4	16

15.	a	Evaluate the impact of AI techniques on robotic efficiency.	L5	5	16
		Or			
	b	Assess the potential benefits and limitations of AI in robotic applications.	L5	5	16