QP.Code	U21MEX-1A	Reg.No	2303113148021

KPR Institute of Engineering and Technology
(Autonomous)
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Learn Beyond

Dept.:	AIDS,AIML,BM, CE,CS,EEE
Ac.Yr.: 2024 – 2025	

Course Code & Title	:	U21MEX01	INDUSTRIAL ROBOTICS	
Year	:	II	Semester: 04	Date: 29.05.2025 - AN
CIAT	:	II	Duration: 90 Minutes	Maximum Marks: 60

Q. No	Section – A (10X1=10 Marks) Answer All Questions	Marks	BT	CO
1	Which term refers to the study of motion and forces in robot manipulators? a. Dynamics b. Kinematics c. Feedback d. Analysis	1	U	CO3
2	What is the mathematical technique used to determine the position of a robot's end-effector? a. Inverse kinematics b. Forward kinematics c. Coordinate Transformation d. Dynamic analysis	1	U	CO3
3	The weight of collaborative robots is less than ____ kgs? a. <29 b. <78 c. <54 d. >45	1	R	CO4
4	What are the main components of robots? a. Capacitor b. Sensors c. Transformers d. Actuators	1	U	CO4
5	Which one of the following level robots are never be reprogrammed? a. Simple level b. Middle level c. Complex level d. Multi level	1	U	CO4
6	What are the disadvantages of robots? a. Don't need experience b. Cost lot of money c. Don't get bored d. Works in dangerous environment	1	R	CO4
7	What is the significance of robots in loading and unloading operations in industrial environments? a. Increasing throughput and reducing downtime b. Managing inventory control c. Performing quality control inspections d. Facilitating real-time communication	1	U	CO5
8	How do robots contribute to computer integrated manufacturing (CIM) systems? a. By executing milling and drilling with precision b. By handling heavy loads c. By seamlessly integrating into automated production processes d. By monitoring environmental conditions	1	U	CO5
9	What role do robots play in handling tasks in hostile environments? a. By optimizing logistics and transportation b. By managing inventory control c. By ensuring the safety of human workers d. By monitoring environmental conditions	1	U	CO5

10	What is primary role of robots in welding tasks in industrial setting?				1	R	CO5
	a	Handling heavy loads	b	Executing complex welds swiftly and accurately			
	c	Managing inventory	d	Assisting in quality control inspections			

Q.No	Section – B (10X2=20 Marks) Answer All Questions	Marks	BT	CO
11	What is the common imaging device used for robot vision systems?	2	R	CO3
12	Functions of machine vision system.	2	U	CO3
13	How the python used in robotics?	2	U	CO4
14	Write about the robotics coding.	2	R	CO4
15	Mention the functions of machine vision system.	2	R	CO4
16	Write the classifications of sensors.	2	R	CO4
17	What is AI Robot?	2	R	CO5
18	Types of robot programming.	2	U	CO5
19	How and AGV will differ from an industrial robot?	2	R	CO5
20	Mentions the real-time applications where robotics used.	2	U	CO5

Q.No	Section – C (1X6=6 Marks & 2X12=24 Marks) Answer All Questions	Marks	BT	CO
21 a)	Explain the functions of machine vision system with a neat block diagram.	6	U	CO3
	(Or)			
21 b)	Explain the basic types of lighting devices used in machine vision system.	6	U	CO3
22 a)	Explain in detail about sensors reliability, accuracy, repeatability, interfacing, size and weight.	12	Ap	CO4
	(Or)			
22 b)	Describe briefly the forward and inverse kinematics in detail.	12	Ap	CO4
23 a)	Explain the welding & soldering process of robots in industrial applications.	12	Ap	CO5
	(Or)			
23 b)	Explain the casting & molding process of robots in industrial applications.	12	Ap	CO5