Reg. No: | | | | | | | | | | | | |

Question Paper Code: U5M01

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Fifth Semester

Computer Science Engineering

(Artificial Intelligence And Machine Learning)

21UAM501 INTELLIGENT ROBOTS

(Regulations 2021)

Duration: Three hours | Maximum: 100 Marks

PART A - (10 x 2 = 20 Marks)

1.	Write the Laws of Robotics	CO1-U	
2.	What are the types of Drive System used in Robots?	CO1-U	
3.	How the Robots are grouped?	CO1-U	
4.	Which type of Drive is suitable for Heavy Load Applications?	CO1-U	
5.	What is some common programming languages used in robotics?	CO1-U	
6.	What are the different generations of Programming Language?	CO1-U	
7.	What are the different Robot Applications in Industries?	CO1-U	
8.	What roles do robots play in nuclear power plants?	CO1-U	
9.	What is the Workspace of Robot?	CO1-U	
10.	What are the different levels of Robotic languages?	CO1-U	

PART – B (5 x 16= 80 Marks)

11.	(a)	Describe about Robotics Automation. Distinguish between Hard Automation and Flexible Automation with examples.	CO1-U	(16)
		Or		
	(b)	The Population of Robots worldwide is increasing. Discuss about the factors contributing to this growth?	CO1-U	(16)
12.	(a)	Explain about degree of freedom (DOF)? How many DOF's are required to position an end-effector at any point in 3-D Space?	CO1-U	(16)
		Or		
	(b)	Explain in detail different types of actuators used for Robot End Effectors? State the advantage of each actuator.	CO1-U	(16)

13.	(a)	Explain in detail different Robot Application in Industries?	CO1-U	(16)
		Or		
	(b)	Explain the functioning of the following textual robot language commands: (i) DMOVE (ii) REACT (iii) CLOSE 40mm	CO1-U	(16)
14.	(a)	Robots still cannot replace humans in several industrial applications. List the applications where a robot still cannot be applied and why?	CO2-App	(16)
		Or		
	(b)	Robotics is also finding applications in education and entertainment. Briefly explain a few applications how robotics can help in education.	CO2-App	(16)
15.	(a)	Explain the Characteristics of Future Robot tasks.	CO1-U	(16)
		Or		
	(b)	Explain in detail the basic rules and procedures followed in the use of Robots Assembly.	CO1-U	(16)