Q.P. Code: 19ME0337 **R19**

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech IV Year I Semester Regular Examinations November/December-2022

MECHATRONICS & ROBOTICS

(Mechanical Engineering)

Time: 3 hours Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

1	a	Define control system. Explain about control systems?	L1	6M
	b	Explain the open loop control system with neat sketch in detail?	L3	6M
		OR		
2		List out thermal expansion methods and describe electrical resistance sensor of RTD with neat sketch.	L2	12M
		UNIT-II		
3	a	How do you classify the actuation system? Draw actuation system functional diagram.	L3	6M
	b	Mention the limitations of actuators.	L5	6M
		OR		
4	a	Write the function of resistors and draw symbol of fixed resistor with ANSI standard?	L1	6M
	b	Show protection circuit and explain it with few features.	L4	6M
		UNIT-III		
5	a	Which type microcontroller is most commonly used? Discuss architecture of 8051 Microcontroller.	L4	6M
	b	How does micro controller work?	L2	6M
		OR		
6	a	What aspects should be considered for the selection of a PLC for the application?	L3	6M
	b	Draw flip flop shift register and explain it.	L3	6M
		UNIT-IV		
7		Differentiate between newton-Euler and Euler –Lagrangian formulations in find the dynamic equations of motion.	L1	12M
		OR		
8		Explain the steps involved in trajectory planning.	L3	12M
		UNIT-V		
9		Classify various programming languages used in computer controlled robots.	L2	12M
		OR		
10		Illustrate the robot application in assembly and Inspection.	L2	12M

*** END ***