Reg. No.												

Question Paper Code	12707

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

Sixth Semester

Mechanical Engineering

20MEPC603 - MECHATRONICS

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	List the applications of Temperature sensor.	2	K1	CO1
2.	Distinguish between open loop and closed loop control systems.	2	K2	CO1
3.	Classify the addressing modes of 8085.	2	K2	CO2
4.	List the interrupts in 8085.	2	K1	CO2
5.	Compare parallel and serial type of data transfer.	2	K2	CO3
6.	Define Key Debouncing.	2	K1	CO3
7.	Quote the advantages of PLC over traditional control systems.	2	K2	CO4
8.	What is ALU? State its functions.	2	K1	CO4
9.	Compare AC & DC Servomotors.	2	K2	CO5
10.	What are the elements of electrical motors?	2	K1	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

			Marks	K – Level	CO
11.	a) i)	Classify the mechatronics system.	7	K2	CO1
	ii)	Distinguish between sensors and transducers with examples.	6	K2	CO1
		OR			
	b)	Interpret the various elements of a closed loop system in washing machine and describe their functions.	13	K2	CO1
12.	a)	Explain about the pin configuration of 8085 microprocessor.	13	K2	CO2
		OR			
	b)	Explain the addressing modes of 8085 with minimum four examples in each group.	13	K2	CO2
13.	a)	Illustrates the various operating modes of 8255 PPI.	13	K2	CO3
		OR			
	b)	Explain the seven segment LED interface with the microprocessor.	13	K2	CO3

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

14. a) Explain the architecture of PLC with a neat sketch. *13 K2 CO4*

OR

b) Compare the various data handling operations with suitable examples. *13 K2 CO4*

15. a) Elaborately discuss the construction and working principles of servomotor. *13 K2 CO5*

OR

b) What are the types of stepper motors? Explain with suitable diagram about permanent magnet stepper motor. *13 K2 CO5*

PART - C (1× 15 = 15 Marks)

16. a) Evaluate the various stages in designing a mechatronics system. *15 K5 CO6*

OR

b) Evaluate the concept of car engine management system by mechatronics approach. *15 K5 CO6*