CBCS SCHEME

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BME515A

Fifth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025
Mechatronics

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Define control system. Classify the different types of control system with neat sketches.	10	L1	CO1
	b.	With a neat block diagram, explain the working principle of engine management system.	10	L2	CO1
		OR			
Q.2	a.	Define transducer. Classify the different types of transducers.	10	L1	CO1
	b.	Define Hall effect. Explain the working principle of Hall effect sensor.	10	L2	CO1
		Module – 2			
Q.3	a.	With a neat block diagram, explain the working principle of operational amplifier.	10	L2	CO2
	b.	What is filtering? With a neat sketch, explain the different types of filtering.	10	L2	CO2
		OR			
Q.4	a.	With a neat sketch, explain the working principle of Brushless permanent magnet DC motor.	10	L2	CO2
	b.	Define Solenoid. With a neat sketch classify the different types of solenoids.	10	L2	CO2
		Module – 3			
Q.5	a.	With a neat sketch, explain the basic elements of control system.	10	L2	CO3
	b.	List the features of microcontroller. Differentiate between microcontroller and microprocessor.	10	L2	CO3
		OR			
Q.6	a.	With a neat block diagram, explain the working concept of Microcontroller.	10	L2	CO3
	b.	Briefly explain the following terms: (i) CPU (ii) ALU (iii) I/O devices (iv) Memory and address (v) Assembler	10	L2	CO3
		Module – 4			
Q.7	a.	With a neat sketch, explain the basic structure of PLC.	10	L3	CO4
	b.	Explain the concept of PLC for selection of application.	10	L2	CO4
		OR			
Q.8	a.	With a neat sketch, explain the control of two pneumatic pistons.	10	L3	CO4
	b.	With a neat sketch, explain the control of conveyor motor.	10	L2	CO4
		Module – 5			
Q.9	a.	What is a CNC? Explain the different types of CNC machine.	10	L2	CO5
	b.	Define Guide way. Explain the classification of different types of Guide ways.	10	L2	CO5
		OR			
Q.10	a.	Explain the different stages of design process in mechatronics system.	10	L2	CO5
	b.	Explain the case study of pick and place robot in mechatronic system.	10	L2	CO5

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