CBCS SCHEME

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BMT654C

Sixth Semester B.E./B.Tech. Degree Examination, June/July 2025
Mechatronics Engineering

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 Mechatronics and brief about the evolution of mechatronics.	10	L2	CO1
	b.	With block diagram, explain multi-disciplinary scenario in mechatronics.	10	L2	CO1
		OR			
Q.2	a.	With block diagram, explain the working of engine management system.	10	L2	CO1
	b.	Enumerate sequential controller. Explain with block diagram the working of automated washing machine.	10	L2	CO1
		Module – 2			
Q.3	a.	Define transducer and classify it. Sketch and explain the capacitive transducer.	10	L2	CO2
	b.	Elaborate, discuss on i) Proximity sensor ii) Hall effect sensor	10	L2	CO2
		OR			
Q.4	a.	Differentiate between transducer and sensor.	10	L2	CO2
	b.	Discuss on LVDT with a neat sketch and also mention the advantages of LVDT.	10	L2	CO2
		Module – 3			
Q.5	a.	Define Filter. How Filters are classified? Write a brief note on types of filters.	10	L2	CO3
	b.	Define signal conditioning. Explain the process of signal conditioning.	10	L2	CO3
		OR			
Q.6	a.	Explain the single channel and multi channel Data Acquisition System (DAQS) with block diagram.	10	L2	CO3
	b.	Explain in detail Supervisory Control and Data Acquisition (SCADA).	10	L2	CO3
		Module – 4			
Q.7	a.	Explain briefly the terms used in specification of stepper motor.	10	L2	CO4
	b.	Explain the types of Brush type D.C motors with field coils with neat sketch.	10	L2	CO4

		OR			
Q.8	**a.**	Define Program Logic Controllers. With block diagram, explain the basic internal structure of PLC.	**10**	**L2**	**CO4**
	b.	Briefly explain the basic structure of ladder logic system.	**10**	**L2**	**CO4**
		Module – 5			
Q.9	**a.**	Design a mechatronic system for automatic car park barrier.	**10**	**L2**	**CO5**
	b.	Discuss the traditional and mechatronics design process.	**10**	**L2**	**CO5**
		OR			
Q.10	**a.**	Explain the different stages of mechatronic design process.	**10**	**L2**	**CO5**
	b.	Explain with a neat sketch various parts or sub-systems of pick and place robot.	**10**	**L2**	**CO5**

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