CBCS SCHEME

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BMT502

Fifth Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026
Micro and Smart System Technology

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.	Construct and explain typical smart system.	10	L2	CO1
	b.	Illustrate the miniatured low power transceiver.	10	L2	CO1
		OR			
Q.2	a.	Using neat diagram, explain ADXL50 accelerometer.	10	L2	CO1
	b.	Classify and explain Integrated Microsystem.	10	L2	CO1
		Module – 2			
Q.3	a.	With a neat diagram, describe the operation, Piezoresistive pressure sensors, using Wheatstone bridge circuit.	10	L2	CO2
	b.	Write a note on : (i) Electrostatics (ii) Parallel plate capacitor (iii) Folded beam suspension	10	L2	CO2
		OR			
Q.4	a.	Explain the principal operation of magnetic micro relay with a schematic diagram and list the applications.	10	L2	CO2
	b.	Describe : (i) Piezoelectric Actuators (ii) Electro Thermal Actuators	10	L2	CO2
		Module – 3			
Q.5	a.	Write a brief note on micromachining classification and explain electronics and electromechanical sensing port using a diagram.	10	L3	CO3
	b.	Illustrate the atomic arrangements in various crystal plans in a unit cell of silicon.	10	L3	CO3
		OR			
Q.6	a.	Using a neat schematic diagram, explain thermal evaporation unit for depositing metals and other materials.	10	L3	CO3
	b.	Illustrate the different steps involved in the lithography process.	10	L3	CO3
		Module – 4			
Q.7	a.	Describe the construction and operation details at Schottky diode.	10	L2	CO4
	b.	Illustrate the different types of Bipolar Junction Transistor (BJT).	10	L2	CO4
		OR			
Q.8	a.	Write a note on Cut off mode, Triode mode and Saturation mode in MOSFET.	10	L2	CO4
	b.	Using neat diagram, explain operational amplifier.	10	L2	CO4
		Module – 5			
Q.9	a.	Describe PID controller and implement using Op-Amp circuit.	10	L2	CO5
	b.	Using neat diagram, illustrate the microcontroller.	10	L2	CO5
		OR			
Q.10	a.	Explain Digital Control System.	10	L2	CO5
	b.	With a neat block diagram, describe air bag trigger system in automobile using microcontroller.	10	L2	CO5

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