CBCS SCHEME

First Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025
Introduction to Mechanical 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.	Explain the role of Mechanical Engineering in Industries and society.	10	L2	CO1
	b.	Explain briefly the emerging trends of Mechanical Engineering in manufacturing and Energy sector.	10	L2	CO1
		OR			
Q.2	a.	With sketch, explain the working principal of Thermal Power Plant.	10	L2	CO1
	b.	Explain the utilization of solar energy using Flat plate collector with a schematic diagram.	10	L2	CO1
		Module – 2			
Q.3	a.	With line diagram, explain the working principle of Lathe machine.	6	L2	CO2
	b.	With neat sketches, illustrate i) Boring operation and ii) Reaming operation of drilling machine.	8	L3	CO2
	c.	Differentiate between Up milling and Down milling.	6	L2	CO2
		OR			
Q.4	a.	With sketch, explain the basic components of CNC machine.	10	L2	CO2
	b.	State the advantages and applications of CNC machine.	5	L1	CO2
	c.	List and explain in brief the various steps involved in Additive manufacturing.	5	L1	CO2
		Module – 3			
Q.5	a.	Analyze the working of four stroke petrol engine with sketches. Plot the PV diagram.	10	L4	CO3
	b.	List any five significant difference between petrol and diesel engine.	5	L1	CO3
	c.	State the various applications of IC engines.	5	L1	CO3
		OR			
Q.6	a.	Describe Electrical Vehicles (EVs). Explain the components and working of Electrical vehicles.	10	L2	CO3

	b.	List the advantages and disadvantages of Electrical and Hybrid Electrical Vehicles.	10	L1	CO3
Module – 4					
Q.7	a.	State the classification of Metals.	5	L1	CO4
	b.	Discuss the compositions , properties and applications of Ferrous and Non – Ferrous metals.	10	L2	CO4
	c.	What are Shape Memory Alloys? Mention the applications of Shape Memory alloys.	5	L2	CO4
OR					
Q.8	a.	What is Welding? With sketch, explain the process of Arc welding.	10	L2	CO4
	b.	With figures, explain the 3 – types of flames in Oxy – Acetylene gas welding.	6	L1	CO4
	c.	Discuss the application of brazing.	4	L2	CO4
Module – 5					
Q.9	a.	Define Automation. Explain 3 – types of automation with example.	10	L2	CO5
	b.	With sketches, explain Cartesian and Polar robotic configurations.	6	L2	CO5
	c.	Differentiate between Open loop and Closed loop control system.	4	L2	CO5
OR					
Q.10	a.	Define Internet of Things (IoT). Briefly explain the characteristics of IoT.	10	L2	CO5
	b.	Explain physical design and protocols of IoT.	10	L2	CO5

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