USN | | | | | | | | | | | | BESCK204D/BESCKD204

Second Semester B.E./B.Tech. Degree Examination, June/July 2023
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.	Discuss the role of mechanical engineering in Industries and Society.	10	L2	CO1
	b.	Explain the emerging trends and technologies in following sectors: (i) Energy sector (ii) Manufacturing sector (iii) Marine sector (iv) Aerospace sector	10	L2	CO1
		OR			
Q.2	a.	With a neat sketch, explain the working principle of Nuclear Power Plant.	10	L2	CO1
	b.	Explain some of the engineering applications of bio-fuels.	10	L2	CO1
		Module – 2			
Q.3	a.	Explain the working principle of Lathe, drilling and milling machine.	10	L2	CO2
	b.	With a neat sketch, explain the following operations performed on lathe machine : (i) Turning (ii) Facing (iii) Knurling	10	L2	CO2
		OR			
Q.4	a.	What is CNC? Explain the basic components of CNC with a neat sketch.	10	L2	CO2
	b.	List the advantages and applications of CNC.	10	L1	CO2
		Module – 3			
Q.5	a.	With a neat sketch, explain the working principle of 4-stroke Petrol Engine along with PV diagram.	10	L2	CO3
	b.	With a neat sketch, list and explain the components of IC engine.	10	L2	CO3
		OR			
Q.6	a.	What are electric and hybrid vehicles? List the advantages and disadvantages of EVs and hybrid vehicles.	10	L1	CO3
	b.	Explain the components of electric and hybrid vehicle with a neat sketch.	10	L2	CO3
		Module – 4			
Q.7	a.	Discuss composition, properties and applications of ferrous and nonferrous metals.	10	L2	CO4
	b.	Write a note on shape memory alloys.	10	L2	CO4
		OR			
Q.8	a.	Differentiate between soldering, brazing and welding.	10	L2	CO4
	b.	Explain the working principle of Arc Welding with a neat sketch.	10	L2	CO4
		Module – 5			
Q.9	a.	Explain the classification of robot based on robot configuration.	10	L2	CO5
	b.	Explain the elements of automated system and list its advantages.	10	L2	CO5
		OR			
Q.10	a.	Define IoT and explain the characteristics of IoT.	10	L2	CO5
	b.	Explain the physical design and protocols of IoT.	10	L2	CO5

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