CBCS SCHEME

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BESCK104D/BESCKD104

First 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.

			M	L	C
		Module – 1			
Q.1	**a.**	Discuss the role of mechanical engineering as applied to energy and aerospace sectors.	**8**	**L2**	**CO1**
	b.	Explain in brief the current trends in manufacturing and automotive sectors.	**6**	**L2**	**CO1**
	c.	Explain the causes for global warming and ozone layer depletion. Also cite your suggestions to control global warming and ozone depletion.	**6**	**L2**	**CO1**
		OR			
Q.2	**a.**	Give the list of types of fuels used in electric power production.	**4**	**L1**	**CO1**
	b.	Distinguish between renewable and non-renewable energy resources.	**6**	**L2**	**CO1**
	c.	With a neat diagram, explain the working of solar power plant.	**10**	**L2**	**CO1**
		Module – 2			
Q.3	**a.**	Explain the following machine tool operations using lathe: i) Cylindrical turning ii) Knurling.	**10**	**L2**	**CO2**
	b.	Explain the working principle of bench drilling machine.	**10**	**L2**	**CO2**
		OR			
Q.4	**a.**	With a block diagram, explain the components of "CNC TURNING" machine.	**10**	**L3**	**CO2**
	b.	Discuss on the importance of "3-D printing" technology in manufacturing.	**4**	**L3**	**CO2**
	c.	Enumerate on the advantages and disadvantages of "3-D printing" technology.	**6**	**L3**	**CO2**
		Module – 3			
Q.5	**a.**	Describe the working of constant pressure cycle (4-stroke diesel engine) with suitable diagram and also P-V diagram.	**12**	**L2**	**CO3**
	b.	Discuss the advantages and challenges of electrical vehicles in the current situation as applied to manufacturing of E-vehicles.	**8**	**L3**	**CO3**

		OR			
Q.6	**a.**	Describe the working of "Electric-Hybrid vehicle" with the aid of block-diagram.	8	L3	CO3
	b.	Distinguish between pure gasoline and electric hybrid vehicle in the context of power-transmission drive systems.	8	L3	CO3
	c.	Mention the applications of IC Engine.	4	L2	CO3
		Module – 4			
Q.7	**a.**	Compare Ferrous, non-ferrous metals with reference to properties and applications.	8	L2	CO4
	b.	Write short notes on: i) Ceramics ii) Polymers iii) Shape memory alloys.	12	L2	CO4
		OR			
Q.8	**a.**	Explain the working principle of gas welding process with the help of a neat diagram.	10	L2	CO4
	b.	Differentiate between welding, brazing and soldering processes.	6	L2	CO4
	c.	Define the term "Arc-welding" and give its applications.	4	L1	CO4
		Module – 5			
Q.9	**a.**	What do you understand by term "Mechatronics".	2	L1	CO5
	b.	Explain the open-loop and closed-loop mechatronic systems. Also give an example for each.	8	L2	CO5
	c.	Discuss on the characteristics of Internet Of Things [IOT] and protocols of IOT.	10	L2	CO5
		OR			
Q.10	**a.**	Define the term "Automation". Explain in brief the types of automation in manufacturing with an example for each.	10	L2	CO5
	b.	Classify the Robots on the basis of physical configuration.	10	L2	CO5

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