CBCS SCHEME

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BEMEM103/203

First/Second Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025

Elements of 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 the formation of steam at constant pressure with T – h diagram.	10	L2	CO1
		OR			
Q.2	a.	Explain with a neat sketch, construction and working of Nuclear Power Plant.	10	L2	CO1
	b.	Explain the following : i) Latent treat of steam ii) Dryness fraction iii) Web steam iv) Dry steam v) Super heated steam.	10	L2	CO1
		Module – 2			
Q.3	a.	Explain with a neat sketch, the following drilling : i) Boring ii) Reaming iii) Tapping iv) Counter sinking v) Counter boring.	10	L2	CO2
	b.	Explain with a neat sketch, the components of CNC. List the advantages and applications of CNC.	10	L2	CO2
		OR			
Q.4	a.	Explain the working and types of milling machine.	6	L2	CO2
	b.	Explain with a neat sketch, the following milling operations : i) Plane milling ii) End milling iii) Slot milling.	6	L2	CO2
	c.	Explain with a neat sketch the following lathe operations : i) Turning ii) Facing iii) Knurling iv) Thread cutting.	8	L2	CO2
		Module – 3			
Q.5	a.	Explain the working of 4 – stroke Diesel engine with neat sketch.	10	L2	CO2
	b.	Explain the desirable properties of a refrigerants.	10	L2	CO2
		OR			
Q.6	a.	Explain the working of VCR refrigeration system with neat figure.	10	L2	CO2
	b.	Explain the following : i) Indicated power ii) Brake power iii) Mechanical efficiency iv) Thermal efficiency v) Specific fuel consumption.	10	L2	CO2

		Module – 4			
Q.7	**a.**	Briefly explain the types of gear drives with neat sketch.	**10**	**L2**	**CO3**
	b.	Explain with a neat sketch, gas welding process. List the advantages and disadvantages.	**10**	**L2**	**CO3**
		OR			
Q.8	**a.**	Define Soldering , brazing and welding. Explain the differences between soldering , brazing and welding.	**10**	**L2**	**CO3**
	b.	Explain with a neat sketch, V – belt drive. List the advantages and disadvantages.	**10**	**L2**	**CO3**
		Module – 5			
Q.9	**a.**	Briefly explain Electric and Hybrid vehicles. List the advantages and disadvantages.	**10**	**L2**	**CO3**
	b.	Explain the applications of Robots in material handling , processing and assembly and inspection.	**10**	**L2**	**CO3**
		OR			
Q.10	**a.**	Define Mechatronics. Briefly explain open loop and closed – loop mechatronic systems.	**10**	**L2**	**CO3**
	b.	Define a Robot. Explain Robot anatomy with a neat sketch.	**10**	**L2**	**CO3**

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