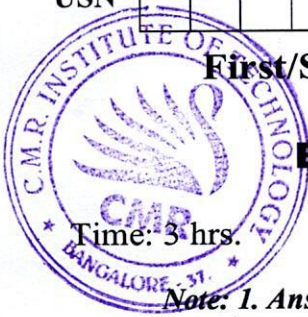


# CBCS SCHEME

USN

BEMEM103/203



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

## Elements of Mechanical Engineering

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

\*\*\*\*\*