## CBCS SCHEME

USN											BESCK104D/BESCKD10
-----	--	--	--	--	--	--	--	--	--	--	--------------------

## First Semester B.E./B.Tech. Degree Examination, June/July 2024 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.
- 3. Write neat sketches wherever it is necessary.

		Module – 1	M	L	C			
Q.1	a.	Explain briefly the emerging trends of mechanical engineering in	10	L2	CO1			
	1	Automotive and Aerospace sector,						
	b.	Describe the following:	10	L2	CO1			
		i) Biofuels ii) Nuclearfuels						
0.1		OR	8	L2	CO1			
Q.2	a.							
	b.	Explain the utilization of solar energy using flat plate collector with a schematic diagram.	8	L2	CO1			
	c.	Outline the following:	4	L1	CO1			
		i) Environmental issues ii) Fossil fuels.						
0.0	T	Module – 2			000			
Q.3	a.	Explain the working principle of Lathe with line diagram.	7	L2	CO2			
	b.	Illustrate the following operations of drilling with sketches.  i) Boring ii) Reaming iii) Drilling.	6	L3	CO2			
	c.	Explain the following milling operations	7	L2	CO2			
		i) Plain milling ii) Slot milling.						
					-			
		OR						
Q.4	a.	Define additive manufacturing. List the various steps involved in Additive manufacturing.	6	L1	CO2			
	b.	Describe the various components of CNC with Schematic diagram.	8	L2	CO <sub>2</sub>			
	c.	List the advantages and applications of 3D printing (3 each).	6	L1	CO2			
		Module – 3						
Q.5	a.	Explain the working of the 4 stroke diesel engine with sketches plot the PV diagram.	12	L2	CO3			
	b.	List the differences between 4 stroke petrol and diesel engine (any 8).	8	L1	CO3			
4								
		OR	8		=			
Q.6	a.	Describe Electric vehicles. Explain the components and working of the electric vehicles.	8	L2	CO3			
	b.	Describe Hybrid vehicles. Explain the components of Hybrid vehicles.	8	L2	CO3			
	c.	List the advantages and limitation of electric vehicles (any two each).	4	L1	CO3			
		Module – 4			. (			
Q.7	a.	Recite the classification of metals.	5	L1	CO4			
	b.	Describe the following materials i) Plastics ii) Shape memory alloys.	6	L2	CO4			
	c.	Observe and describe the three types of gas flames with sketches.	9	L2	CO4			
			-					

		OR			
Q.8	a.	List the difference between soldering, Brazing and welding (at least 5).	10	L1	CO <sub>4</sub>
<u> Z.o</u>	b.	Describe the construction and working of Arc welding. Process with neat sketch.	10	L2	CO4
		Module – 5			
Q.9	a.	Define Mechatronics. List the differences between open loop and closed loop system (any 6).	8	L1	CO
	b.	Based on the configuration, explain the four types of Robots.	8	L2	CO
	c.	List the various applications of robots in various fields.	4	L3	CO:
<del> </del>		OR			
Q.10	a.	Define Automation. Explain the three types of Automation.	7	L1	CO
	b.	Describe the basic elements of automation system with block diagram.	8	L2	CO:
	c.	Define IoT. List the characteristics of IoT (any 6).	5	L1	CO
		*****			
		67			
	4				
. (		Y Y			
	7				