



# MAKE-UP EXAM

BESCK104D/BESCKD104

First Semester B.E./B.Tech. Degree Examination, Nov./Dec.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.	Write short note on the emerging trends and technologies in the following sectors: i) Energy      ii) Manufacturing      iii) Automotive	12	L2	CO1
	b.	Explain the role of mechanical engineers in Industries and society.	8	L2	CO1
<b>OR</b>					
Q.2	a.	Write short notes on the following: i) Solar pond      ii) Ozone depletion      iii) Global warming.	12	L2	CO1
	b.	What are bio-fuels? Explain them briefly. Also list their applications and limitations.	8	L1, L2	CO1
<b>Module - 2</b>					
Q.3	a.	Briefly explain the following lathe operations: i) Turning      ii) Facing      iii) Knurling.	12	L2	CO2
	b.	Explain the drilling and boring operations with simple diagrams.	8	L2	CO2
<b>OR</b>					
Q.4	a.	Explain the operation of a CNC machine naming its major components. List its advantages over conventional machine tools. Also list its applications.	12	L2, L1	CO2
	b.	What is 3D-printing technology? List the merits, applications and limitations of a 3D printer.	8	L1	CO2
<b>Module - 3</b>					
Q.5	a.	What are the basic components of a 4-stroke petrol engine? Explain briefly the operation of a 4-stroke petrol engine with neat line diagram.	12	L1, L2	CO3
	b.	Explain briefly the applications of an IC engine.	8	L2	CO3
<b>OR</b>					
Q.6	a.	Outline the main characteristics and principles of electric vehicles including their basic components. Also list their advantages and limitations over fossil-fuel based vehicles.	12	L2, L1	CO3
	b.	What are hybrid vehicles? What are their advantages and disadvantages?	8	L2	CO3

## Module – 4

Q.7	a.	What are ferrous and non-ferrous metals? List their characteristics and applications.	12	L1	CO4
	b.	Explain the characteristic properties of: i) Polymers ii) Shape memory alloys.	8	L2	CO4

## OR

Q.8	a.	With neat diagrams, explain various gas-welding flames (oxy-acetylene).	12	L2	CO4
	b.	With neat diagrams, explain the process of arc welding.	8	L2	CO4

## Module – 5

Q.9	a.	Explain the three configurations of robots based on coordinate systems with neat diagrams.	12	L2	CO5
	b.	Explain : i) Fixed automation ii) Programmable automation.	8	L2	CO5

## OR

Q.10	a.	Briefly explain various IOT communications models with block diagrams of each of them.	12	L2	CO5
	b.	Explain the characteristics and applications of IOT.	8	L2	CO5

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