U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

June 2025 Semester End Main Examinations

Programme: B.E. **Semester: VI**
Branch: Mechanical Engineering **Duration: 3 hrs.**
Course Code: 23ME6PEDIM / 22ME6PEDIM **Max Marks: 100**
Course: Digital Manufacturing

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT - I	CO	PO	Marks
1	a)	Explain the architecture of digital manufacturing with a neat sketch.	CO2	PO1	**10**
	b)	Define digital manufacturing, and explain the concept of Digital Manufacturing.	CO2	PO1	**10**
		OR			
2	a)	Explain the operation model of digital manufacturing.	CO2	PO1	**12**
	b)	List the advantages and limitations of digital manufacturing.	CO2	PO1	**08**
		UNIT - II			
3	a)	Explain the steps in the design process and also describe the role of CAD in the design process.	CO3	PO1	**10**
	b)	Describe the wireframe model entities and state their advantages in CAD.	CO3	PO1	**10**
		OR			
4	a)	Explain the concept of digital twin in manufacturing.	CO3	PO1	**10**
	b)	List and explain the modelling and simulation tools used in digital manufacturing.	CO3	PO1	**10**
		UNIT-III			
5	a)	Explain the Role of Industrial IOT in Manufacturing.	CO5	PO1	**10**
	b)	Elaborate on Industry 4.0 in manufacturing. State its advantages and limitations.	CO2	PO1	**10**
		OR			
6	a)	Explain any three types of sensors used in Smart manufacturing.	CO5	PO1	**10**
	b)	What are the security challenges faced by Industrial IOT systems? Elaborate on the same?	CO2	PO1	**10**
		UNIT IV			
7	a)	Explain the need for reverse engineering? List and explain any	CO3	PO1	**10**

			two hardware and software components of reverse engineering.			
		b)	Explain how tool path generation is done in computer-aided manufacturing.	*CO4*	*PO1*	**10**
			OR			
	8	a)	Explain design considerations for Additive Manufacturing.	*CO1*	*PO1*	**10**
		b)	Explain any two human-robot collaboration scenarios in manufacturing industries.	*CO5*	*PO1*	**10**
			UNIT - V			
	9	a)	Explain the PLM 4.0 system and also state its advantages.	*CO7*	*PO1*	**10**
		b)	List the Functions of the PLM system.	*CO7*	*PO1*	**10**
			OR			
	10	a)	Explain the type of product data in PLM.	*CO7*	*PO1*	**10**
		b)	Describe the system architecture of PLM.	*CO7*	*PO1*	**10**

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