

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

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations**Programme: B.E.****Branch: Industrial Engineering & Management****Course Code: 23IM5PEPDD****Course: Product Design & Development****Semester: V****Duration: 3 hrs.****Max Marks: 100**

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)	Discuss the role of design and development in ensuring product success and describe the steps involved.	CO2	PO1	10
		b)	Explain with a block diagram, a generic development process.	CO2	PO1	10
			OR			
	2	a)	Evaluate the factors influencing the duration and cost of product development, and suggest strategies to optimize them.	CO5	PO2	10
		b)	Illustrate the steps in the AMF development process and analyze its effectiveness compared to a generic development process.	CO4	PO2	10
			UNIT - II			
	3	a)	Explain the process of identifying customer needs using suitable examples, and evaluate its importance in product development.	CO2	PO2	10
		b)	Explain when product specifications are typically established during the development process.	CO2	PO2	10
			OR			
	4	a)	Evaluate how a structured process enhances creativity and innovation.	CO5	PO3	10
		b)	List and explain the set of matrices corresponding to the need that a ceiling fan rotates efficiently.	CO2	PO2	10
			UNIT - III			
	5	a)	Define the purpose of a concept test and explain its importance in product development.	CO2	PO2	10
		b)	Propose a complete process for conducting a concept test, including reflecting on results to improve the process.	CO3	PO3	10
			OR			

6	a)	Explain the role of product architecture in modular product design with examples.	CO2	PO2	10
	b)	Explain the key steps involved in establishing product architecture.	CO2	PO2	10
		UNIT - IV			
7	a)	What is industrial design, and why is it important to assess the need for industrial design in product development?	CO2	PO2	10
	b)	Discuss the challenges in managing the industrial design process and suggest strategies to overcome them.	CO3	PO3	10
		OR			
8	a)	Define prototyping and explain its basis and importance in product development.	CO2	PO2	10
	b)	Discuss the key factors to consider while planning for prototypes.	CO3	PO3	10
		UNIT - V			
9	a)	Explain the basic principles of IP laws.	CO2	PO2	10
	b)	Illustrate the need for a holistic approach to IP laws using real-world examples.	CO4	PO4	10
		OR			
10	a)	Differentiate between patentable and non-patentable inventions, citing examples from Indian Patent Law.	CO2	PO2	10
	b)	Design a flowchart explaining the procedure for obtaining a patent in India.	CO4	PO4	10
