



PRESIDENCY UNIVERSITY

BENGALURU

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End - Term Examinations – May/June 2026

Date: 15- 05-2026

Time: 09:30am – 12:30pm

School: SOE	Program: B. Tech. (Mechanical Engineering)	
Course Code: MEC4010	Course Name: Product Lifecycle Management	
Semester: VI	Max Marks: 100	Weightage: 50%

CO - Levels	C01	C02	C03	C04	C05
Marks	18	18	24	20	20

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M=20M

1.	Define the term "Product Lifecycle Management"	2 Marks	L1	C01
2.	Identify two primary views considered in a Product Lifecycle Management system.	2 Marks	L2	C01
3.	List the components evaluated during a PLM feasibility study.	2 Marks	L1	C01
4.	State the definition of PLM Visioning.	2 Marks	L1	C01
5.	Identify two key characteristics of PLM.	2 Marks	L1	C02
6.	Explain the significance of "Virtual Testing and Validation" in collaborative product development.	2 Marks	L2	C02
7.	Describe the "Ramp Up" phase in digital manufacturing.	2 Marks	L2	C02
8.	Define what is meant by an "Infrastructure Assessment" in the context of PLM.	2 Marks	L1	C02
9.	Summarize the role of an Engineering Change Request (ECR) in collaborative product development.	2 Marks	L1	C03
10.	Explain the importance of "Process Consistency" in collaborative product development.	2 Marks	L2	C03

Part B

Answer the Questions.

Total Marks 80M

11.	List the primary "Opportunities and Benefits of PLM" for a manufacturing enterprise.	10 Marks	L2	CO1
Or				
12.	State the formal definition of PLM and outline the complete PLM Lifecycle Model from inception to retirement.	10 Marks	L2	CO1
13.	A startup developing an electric two-wheeler faces competition, evolving technology, strict regulations, and cost pressures. Analyze how these PLM drivers influence conceptualization decisions such as feature selection, material choice, innovation, compliance, and time-to-market, highlighting key trade-offs and their impact on the final product concept.	10 Marks	L4	CO2
Or				
14.	An aerospace manufacturer like Boeing produces complex aircraft operating under strict regulations, rapid technological change, and high customer expectations. Analyse how such environmental drivers influence the Production and Support phases by affecting quality control, supply chain coordination, maintenance strategies, regulatory compliance, and continuous product improvement.	10 Marks	L4	CO2
15.	Apply the concept of "Product Reuse" to accelerate the design phase of a new variant of an existing machine.	10 Marks	L3	CO3
Or				
16.	Show how "Marketing Collateral" can be generated directly from Collaborative Product Development data using PLM tools.	10 Marks	L3	CO3
17.	Construct a hierarchical Bill of Materials (BOM) for a mechanical assembly using a Structure Manager and apply specific revision rules to control component visibility.	10 Marks	L3	CO4
Or				
18.	Develop a procedure to create a BOM and configure revision rules using the Structure Manager in Teamcenter.	10 Marks	L3	CO4
19.	Show how you would configure a Bill of Materials (BOM) for a new mechanical assembly using the Structure Manager in Teamcenter, including the application of revision rules.	10 Marks	L3	CO4

Or				
20.	Apply the concepts of Digital Manufacturing to develop a strategy for "Manufacturing the First-One." How does this strategy utilize the virtual learning curve?	10 Marks	L3	C04
21.	Show how "Virtual Testing and Validation" can be applied during the development phase to reduce the need for physical prototypes of a complex mechanical joint.	10 Marks	L3	C03
Or				
22.	Apply the principles of "Design for Environment" (DfE) to modify the Bill of Materials of an existing product, ensuring process consistency throughout.	10 Marks	L3	C03
23.	Design a workflow utilizing the Workflow Designer in Teamcenter to manage the approval process of a newly created Bill of Materials (BOM).	10 Marks	L3	C04
Or				
24.	Apply Digital Manufacturing concepts to configure a production planning setup that incorporates the "Virtual Learning Curve".	10 Marks	L3	C04
25.	A global manufacturing company like Siemens plans to implement a PLM system across multiple plants. Before rollout, it conducts an infrastructure assessment of IT systems, data architecture, and integration capabilities. Examine how this assessment ensures system compatibility, identifies gaps, reduces implementation risks, and supports a smooth, scalable, and successful PLM deployment.	10 Marks	L4	C05
Or				
26.	A global manufacturer like ITC develops a PLM strategy aimed at improving product traceability and lifecycle visibility. The leadership also targets reducing carbon footprint and achieving sustainability goals. Evaluate how aligning the PLM strategy with such corporate objectives strengthens the business case, secures executive approval, and ensures measurable value through environmental and operational benefits.	10 Marks	L4	C05