Seat No.:		Q. Paper Code: FTC-A-015	SET	A

Fabtech Technical Campus, College of Engineering & Research, Sangola

(An Autonomous Institute)

Mechanical Engineering

Academic Year: -2025-26, Semester-I

Industrial Product Design (25PME11173)

Regular End Semester Examination Winter 2025-26 [Dec. / Jan]

Class:	F. Y. M. Tech.	**Day & Date:**	Monday, 05/01/2026
Duration:	03 Hrs.	**Max. Marks:**	60 Marks
Time:	11.00 AM TO 2.00 PM		

Instructions:

1) All Questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat diagram wherever necessary.
4) Make suitable assumptions if necessary and state it clearly.
5) Use of non-programmable calculator is allowed.

Q. No.	Questions	Marks	CO	BL
Q. 1	**Attempt any two of the following**	**12**		
1	Describe the major problems faced by industrial designers.	**6**	1	2
2	Discuss how the quality of industrial design can be assessed.	**6**	1	2
3	Discuss the role of Scale Models in the Design and Development Process.	**6**	1	2
Q. 2	**Attempt any two of the following**	**12**		
1	Apply design principles to differentiate between industrial and consumer product designs using suitable examples.	**6**	2	3
2	Apply manufacturing considerations while developing an industrial product design.	**6**	2	3
3	Explain the process involved in designing industrial and consumer products**.**	**6**	2	2
Q. 3	**Attempt any two of the following**	**12**		
1	Apply the concept of the man–machine relationship to evaluate ergonomic efficiency in a workplace or product.	**6**	3	3
2	Apply the principles of unity, order, and variety to analyze the form and appearance of an industrial product.	**6**	3	3
3	Analyze ergonomic principles and apply them to improve the design of machine tools, automobiles, or instruments**.**	**6**	3	3

Q. 4	**Attempt any two of the following**	**12**		
1	Explain the concepts of creative thinking and inventiveness in product design.	**6**	4	2
2	Apply legal and international standard requirements while developing a new product design.	**6**	4	3
3	Analyze the impact of pre-production planning on product quality, cost, and time to market.	**6**	4	3
Q. 5	**Attempt any two of the following**	**12**		
1	Apply break-even analysis to evaluate the feasibility of a new product design.	**6**	5	3
2	Explain the economic considerations involved in the selection of materials for product design.	**6**	5	2
3	Describe the impact of Design for Production (DFP) on cost and quality of a product.	**6**	5	2