

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2024****Subject Code:3172318****Date:19-11-2024****Subject Name: Plastics Product Design****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Define Product Design. Explain factors affecting Product Design in brief.	03
	(b) List Short-term and Long-term properties related to Plastic Product Design.	04
	(c) List the General steps to be followed in preliminary product design.	07
Q.2	(a) Short Note: Design Procedure for Bosses used in Plastic Product.	03
	(b) Explain Product design consideration related to Wall-thickness.	04
	(c) Define check-list. List Ideal check-list for Plastic Product Design.	07
OR		
	(c) Explain Design Procedure for Wrist-watch Gear (Made of Plastic).	07
Q.3	(a) Explain in brief significance of Thermoplastic Hinge in Plastic Product.	03
	(b) Explain design procedure to be followed for Designing Ribs for Plastic Product.	04
	(c) List the Product design consideration used to reinforce the product. Explain about Designing of Holes for Plastic.	07
OR		
Q.3	(a) Write best suitable material for Self-lubricating properties.	03
	(b) List the Advantages of Transfer Molding over Compression Molding.	04
	(c) List the Product design consideration related to mold design. Explain about Weld-lines and Size& Location of Gate.	07
Q.4	(a) State typical Product design features related to Blow-Molding.	03
	(b) Explain importance of Material selection criteria while designing the plastic product.	04
	(c) Explain complete design Procedure for Kayak(Made of Plastic)	07
OR		
Q.4	(a) Classify various Plastic Processing Techniques on the basis of product contour.	03
	(b) Why Reinforced Plastic product gives tight tolerance than unreinforced Plastic product? Explain	04
	(c) Explain complete design Procedure for Chemical Reactor.	07
Q.5	(a) List the required material properties for Plastic Pipes used for Water transportation.	03
	(b) List the best suitable materials for the following properties: (1) Dimensional stability (2) Arc resistance	04
	(c) In recent days car parts like Crank-shaft of Engine replaced by Plastic material. Explain the design procedure starting from selecting plastic material to selecting manufacturing process.	07
OR		
Q.5	(a) Discuss- Product design enhances the growth of Plastic Material.	03
	(b) Short Note: Design Procedure for corners of the product.	04
	(c) List advantages and disadvantages of Injection Molding process related to new product development.	07
