

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2021****Subject Code:3172318****Date:17/12/2021****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.

		<b>MARKS</b>	
<b>Q.1</b>	(a) What is product design? Explain its importance.	<b>03</b>	
	(b) List the short term and long term properties of plastic materials.	<b>04</b>	
	(c) Explain the steps in Product Design.	<b>07</b>	
<b>Q.2</b>	(a) List the points of comparison between rotational molding and blow molding processes.	<b>03</b>	
	(b) What are undercuts? What care should be taken while designing undercuts?	<b>04</b>	
	(c) Explain the material and process selection to design a chemical storage tank.	<b>07</b>	
<b>OR</b>			
<b>Q.3</b>	(c) Explain about design considerations while designing holes in product design.	<b>07</b>	
	(a) What are reasons for failure of a plastic product?	<b>03</b>	
	(b) Describe the preliminary design considerations for designing a product.	<b>04</b>	
<b>Q.3</b>	(c) Explain the importance of taper or draft in product design.	<b>07</b>	
	<b>OR</b>		
	(a) List the points of comparison between compression and transfer molding process.	<b>03</b>	
<b>Q.3</b>	(b) What is an ideal checklist for product design?	<b>04</b>	
	(c) Explain wall thickness design considerations for designing a product.	<b>07</b>	
	<b>Q.4</b>	(a) Which is the process used to manufacture thermoplastic chairs and why?	<b>03</b>
(b) What is the importance of designing radii and fillets in a product?		<b>04</b>	
(c) Explain the product design process for designing a wrist watch gear.		<b>07</b>	
<b>OR</b>			
<b>Q.4</b>	(a) How is consideration of weld line important in designing a product?	<b>03</b>	
	(b) By which process are thermoplastic disposable cups manufactured? Give reasons for the same.	<b>04</b>	
	(c) What is the importance of ribs and bosses? What are the design considerations to be taken while designing ribs and bosses?	<b>07</b>	
<b>Q.5</b>	(a) What is lettering and embossing and how is it important in product design?	<b>03</b>	

- (b) Which is an ideal material to manufacture plastic box with hinge and why? **04**
- (c) Describe the procedure to select appropriate material and process to design an overhead water storage tank. **07**

**OR**

- Q.5**
- (a) What is a parting line? Explain its importance in product design. **03**
  - (b) Write a short note on designing inserts in plastic part. **04**
  - (c) Describe in detail, the procedure for designing a plastic tooth brush. **07**

\*\*\*\*\*