

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE – SEMESTER- VII EXAMINATION-SUMMER 2023****Subject Code: 3172318****Date: 21/06/2023****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 ideal checklist for product design.	<b>04</b>
(c) Explain the essential factors of product design.	<b>07</b>
<b>Q.2</b> (a) What are the limitations of plastic materials?	<b>03</b>
(b) Explain briefly external and internal threads.	<b>04</b>
(c) What are undercuts? What care should be taken while designing undercuts?	<b>07</b>
<b>OR</b>	
(c) Explain about gate size & location.	<b>07</b>
<b>Q.3</b> (a) List any three self-lubricating plastic materials.	<b>03</b>
(b) What are the reasons for the failure of a plastic product?	<b>04</b>
(c) Compare different plastic materials.	<b>07</b>
<b>OR</b>	
<b>Q.3</b> (a) What care should be taken while selecting a material for making milk pouches?	<b>03</b>
(b) Explain the importance of designing radii and fillets in a product.	<b>04</b>
(c) Explain the long-term and short-term properties of plastics.	<b>07</b>
<b>Q.4</b> (a) What are the disadvantages of injection moulding?	<b>03</b>
(b) What is compression moulding? Explain briefly.	<b>04</b>
(c) Compare blow moulding & rotational moulding processes.	<b>07</b>
<b>OR</b>	
<b>Q.4</b> (a) Which process is used to manufacture thermoplastic chairs and why?	<b>03</b>
(b) What is Thermoforming? Explain briefly.	<b>04</b>
(c) Compare different plastic processing methods with respect to product size.	<b>07</b>
<b>Q.5</b> (a) Describe the selection of material for designing a contact lens.	<b>03</b>
(b) What is the importance of ribs and bosses?	<b>04</b>
(c) Describe the procedure for designing a plastic toothbrush in detail.	<b>07</b>
<b>OR</b>	
<b>Q.5</b> (a) Define: i) Molded holes ii) Warpage iii) Insert	<b>03</b>
(b) Briefly explain lettering and embossing.	<b>04</b>
(c) Describe the procedure for designing pipes in detail.	<b>07</b>

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