

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER- VII EXAMINATION – SUMMER 2026

Subject Code:3172318

Date:20-05-2026

Subject Name: Plastics Product Design

Time: 02:30 PM TO 05:00 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 : (i) Product Design (ii) Check list (iii) Ribs	03
	(b) Explain about factors to be considered while designing the product.	04
	(c) List the various steps followed in preliminary product design.	07
Q.2	(a) Explain about product design consideration related to Tolerance.	03
	(b) List the ideal check list for Plastic Product Design.	04
	(c) Explain about product design consideration related to : (i) Wall thickness (ii) Taper & Draft	07
	OR	
	(c) Explain the design procedure for Machine Gear(Made of Plastic Material)	07
Q.3	(a) Explain in brief about Bosses used to design Plastic product.	03
	(b) Explain about Material selection criteria while designing the product.	04
	(c) Explain in detail about design procedure for Spectacle Box.(Made of Plastic)	07
	OR	
Q.3	(a) Explain in brief about design criteria for mold regarding Weld Lines.	03
	(b) Explain design criteria for Holes.	04
	(c) Explain in detail about design procedure for Plastic Cable Coating wires used for Electrical purpose.	07
Q.4	(a) Explain in brief about design procedure for Sharp corners.	03
	(b) Explain in brief about design procedure of Ribs.	04
	(c) Design Procedure: 15000 lit Over Head Water Storage tank (Made of Plastic)	07
	OR	
Q.4	(a) Explain: Design criteria for parting Lines.	03
	(b) Explain: Design criteria for Inserts.	04
	(c) Design Procedure: Plastic Tank used for storage Sulfuric Acid.	07
Q.5	(a) (i) Which of the following material have wear resistance? (e) Acrylic (f) GPPS (g) PC (h) Polyacetal	03

- (ii) Which of the following material have permeability?
 (e) PTFE (f) EVA (g) Polyester glass filled (h) Epoxy
- (iii) Which of the following material have very poor arc resistance?
 (e) Polyarylsulfone (f) Polysulfone (g) Melamine formaldehyde
 (h) Polyethylene
- (b) Explain about short term and long term properties. **04**
- (c) Explain design procedure for Pump Impeller.(Made of Plastic) **07**

OR

- Q.5**
- (a) Reinforced Plastic has higher tolerance than Unreinforced Plastic. Justify it **03**
 - (b) List the advantages & disadvantages of Rotational Molding compare to Blow Molding. **04**
 - (c) Explain design procedure for Plastic Packaging material used for Milk Pouch. **07**
