

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER- VI EXAMINATION – SUMMER 2026****Subject Code:3162312****Date:08-06-2026****Subject Name: Processing techniques for Thermoplastics****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 Blow Molding. List the types of Blow Molding Process.	03
	(b) List the basic process steps for Extrusion Blow Molding.	04
	(c) List advantages and disadvantages of Rotational Molding Process.	07
Q.2	(a) Define Thermoforming. List and Explain material characteristic required for Thermoforming process.	03
	(b) Calculate charge weight for Door to be manufactured by Rotational Molding process. Dimension of Door: 3m x0.87m x0.3m.Thickness 4mm. Material PE with a density of 930kg/m ³	04
	(c) Define Rotational Molding. Explain Rotational process with neat sketch.	07
	or	
	(c) Explain Mode of Heat transfer. Explain Newton's Law of Heat Transfer.	07
Q.3	(a) List the types of Rotational Molding Machines.	03
	(b) Explain straight forming process with neat sketch.	04
	(c) The outer surface of a 10mm thick metal wall (Oven of Rotational Molding) is kept at a temperature of 45 ⁰ C while the inner surface is kept at 350 ⁰ C. Dimension of wall 1200mm x 1000 mm. Thermal conductivity of metal is 50 W/mK. Determine the thermal resistance of wall and rate of heat loss through it.	07
	or	
Q.3	(a) List types of Thermoforming process.	03
	(b) Explain fixed- arm carousel machine with neat sketch.	04
	(c) Explain Plug-Assist forming process with neat sketch. List the variable of Plug-Assist forming.	07
Q.4	(a) Explain Intermittent Blow Molding process in brief.	03
	(b) Explain slush Molding process	04
	(c) List types of Heat Exchanger. Explain Parallel Flow and Counter Flow Exchanger with diagram.	07
	or	
Q.4	(a) Define Plastisol. Explain Dip Molding /Dip Coating process in brief.	03
	(b) Advantages and Disadvantages of Injection Blow Molding over Extrusion Blow.	04

- (c) Define: Blow –Up ratio and Pinch-off. **07**
 Explain about Parison Programming in Blow Molding Process.
- Q.5** (a) List the advantages and disadvantages of Thermoforming. **03**
 (b) Explain STEFAN BOLTZMANN law in brief. **04**
 (c) Explain Injection Blow Molding process in detail with neat sketch. **07**
- or**
- Q.5** (a) Calculate number of Impression for male Vacuum Forming mold for a refrigerator box having length 80 cm, width 60 cm and height 60 cm. Sheet dimensions 800 x 800. Sheet thickness is 4mm. **03**
 (b) Compare: Skin-Packaging with Blister packaging. **04**
 (c) Short Note: (1) Mold of Rotational Molding. (2) Matched Tool forming process. **07**
