

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-IV EXAMINATION – WINTER 2025****Subject Code:3142310****Date:28-11-2025****Subject Name:Injection Molding Technology****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) What are the advantages of Injection moulding.	03
	(b) Define: (i) Shot weight (ii) Back pressure (iii) Suckback (iv) Plasticizing capacity	04
	(c) Draw and explain Injection Moulding Machine and its parts.	07
Q.2	(a) State the Melt Mechanism of Injection Molding Screw.	03
	(b) What is clamping system? Provide types of it?	04
	(c) Explain thermoset injection molding process in detail.	07
OR		
	(c) Write the machine startup and shut down the procedure of the injection moulding machine.	07
Q.3	(a) How to calculate clamp force?	03
	(b) Explain different auxiliary machinery used in Injection Moulding machine.	04
	(c) Compare: Reciprocating Screw Machine with Plunger injection molding	07
OR		
Q.3	(a) What do you mean by Purging? Describe its significance.	03
	(b) Define (1) L/D ratio (2) compression ratio (3) helix angle (4) pitch	04
	(c) Explain about Cavity pressure profile in Injection molding.	07
Q.4	(a) What types of screws are for the injection moulding machine?	03
	(b) Explain PVT profile inside the cavity	04
	(c) Define Nozzle. Explain standard Nozzle with neat sketch.	07
OR		
Q.4	(a) Explain in brief about Nozzle alignment.	03
	(b) Calculate the clamping force in ton for the product having projected area 400 cm ² and cavity pressure is 476 bar.	04
	(c) List out the types of process variables that affect the injection cycle and explain them in detail.	07
Q.5	(a) Define Projected area and tonnage calculation.	03
	(b) What is the purpose of hopper loader in injection moulding machine?	04
	(c) Give causes and remedies of the following defects: (1) Silver steaks (2) Warpage (3) Shrinkage (4) Bubbles & Voids (5) Sink mark (6) Shorts (7) Weld Line	07
OR		
Q.5	(a) Compare the Hydraulic & Toggle system for clamping.	03

- (b) What is Nitriding? Why is it required for screw and barrel? **04**
- (c) Write note on (i) Plunger type machine (ii) Plunger- plunger type machine (iii) Screw- Plunger type machine **07**
