

Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY
Bachelor of Engineering - SEMESTER - IV EXAMINATION - SUMMER 2025

Subject Code: 3142308

Date: 12-05-2025

Subject Name: Fundamentals of Mold 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.**

	Marks
Q.1 (a) Define : (1) Parting Line (2) Core (3) Cavity	03
(b) Define : (1) Sprue bush (2) Runner and gate system (3) Register ring (4) Integer cavity	04
(c) Define Bolster. List the fundamental requirements of Bolster. List types of Bolster. Explain Solid bolster with neat sketch.	07
Q.2 (a) What is feed system? List the design criteria for Sprue.	03
(b) Define Runner. List the types of Runner system.	04
(c) What is runner efficiency? Calculate runner efficiency of round, half round, trapezoidal, modified trapezoidal, rectangular, square runners.	07
OR	
(c) Explain significance of Mold cooling. Explain the following circuit for cooling integer-type cavity plate (1) U circuit (2) Z-circuit	07
Q.3 (a) Explain the Basic Principle of Mold Design.	03
(b) Explain cooling of Rectangular Insert with neat sketch.	04
(c) A cap of diameter 30 mm, height 30 mm and 1.5 mm wall thickness is to be molded in an injection molding machine in a 12 impression mold with HDPE. Calculate total weight of products . Density of HDPE 0.94 gm/cm ³ . Show the balanced runner layout for this system.	07
OR	
(a) Define Guide Pillars and Guide Bush. List the Design criteria for Guide Pillars and Guide Bush.	03
(b) Fill in the blanks:	04
1 Runner that shows highest efficiency is _____	
2 Rectangular edge gate cannot be used for _____ materials	
3. Ring gate is used for _____	
4 Tab gate is used for _____	
(c) What is Register Ring? List types of it.	07

- Q.4 (a)** Define Ejector System. What is Ejector Grid. List types of Ejector Grid. **03**
- (b)** Explain about Retaining Plate and Ejector Rod/Knock out Rod in brief. **04**
- (c)** List types of Ejection. Explain about Sleeve Ejection system in detail with neat sketch. **07**

OR

- (a)** Draw sectional elevation and plan of any product (with suitable dimension) that can be molded in hand injection molding machine. **03**
- (b)** Draw the sectional elevation of the Hand Injection Mold for the product that you selected in Q.4(a). **04**
- (c)** Draw the Inverted plan of the mold for the product that you have selected in Q.4(a). **07**
- Q.5 (a)** Define Gate. List the reasons for small cross sectional area is necessary for the gate. **03**
- (b)** List the types of Gates. **04**
- (c)** Explain about Sprue Gate and FAN Gate with neat sketch. **07**

OR

- (a)** Explain in brief about Profiled Parting Surface with neat sketch. **03**
- (b)** Explain in brief about significance of Venting in Mold Design. **04**
- (c)** Explain stripper plate Ejection system with neat sketch. **07**
