

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-V EXAMINATION – WINTER 2025

Subject Code:3152309

Date:25-11-2025

Subject Name:Plastic Mold & Die 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.

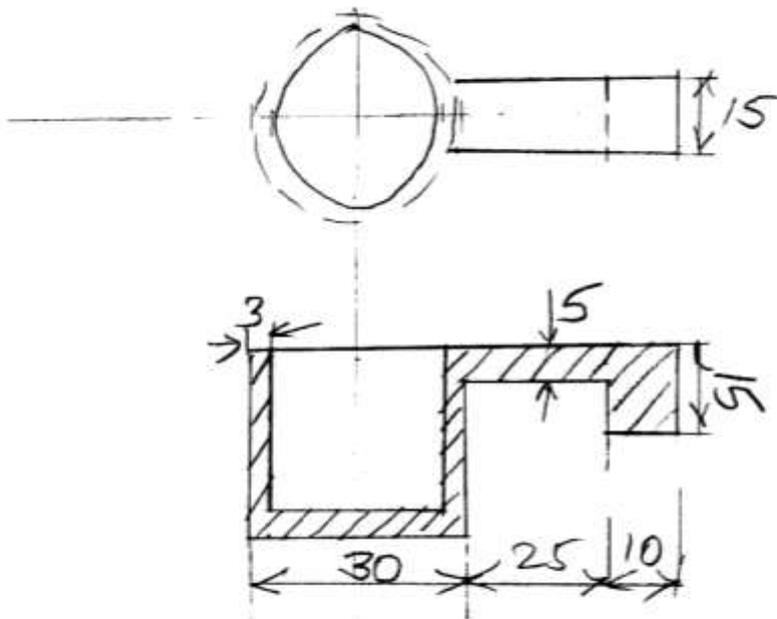
	MARKS
Q.1 (a) Define : Mould, Sprue, Runner	03
(b) Discuss requirements of a Runner	04
(c) For the product shown in fig [a], design a hand injection mould. Show calculation of sprue, Runner and Gate assuming a 2 impression mould.	07
Q.2 (a) Fill in the blanks:	03
1. Runner exhibiting highest efficiency is _____	
2. Ring gate is used for _____	
3. Round Edge gate is used for _____ material	
(b) Differentiate between Insert Bolster and Integer Moulds	04
(c) Define Runner efficiency. Calculate efficiency of half round, full round, trapezoidal, square, rectangular runners.	07
OR	
(c) Discuss Pin Ejection in Detail	07
Q.3 (a) Write difference between two plate and three plate mould	03
(b) Differentiate diaphragm and Ring gate	04
(c) Design a rectangular edge gate for a PE box whose dimensions are : length = 130 mm ; width = 80mm ; depth = 30mm; wall thickness = 2 mm. take $n = 0.6$	07
OR	
Q.3 (a) Differentiate between pipe die and film die.	03
(b) What are the features of a overlap gate?	04
(c) For the product shown in fig. [A], draw a 2 impression mould showing Plan and Sectional Elevation	07
Q.4 (a) Tick the correct answer:	03
1. Minimum diameter of runner should be [a] 1 mm [b] 3mm [c] 2mm [d] 4mm	
2. Sleeve ejection is used for [a] hollow products [b] tall hollow products [c] short hollow products [d] solid products	
3. Stripper plate ejection is preferred for [a] deep products [b] multiimpression moulds [c] products with hollow cores[d] products with undercuts.	
(b) Draw baffle cooling for cores	04
(c) Discuss Heat Rods in Detail	07

OR

- Q.4** (a) What are collapsible cores. 03
 (b) The shot capacity of an Injection moulding machine is 250 gms. It is desired to mould the product shown in fig.[a] on this machine. Work out the no.of impressions that can be moulded on this machine. 04
 Bulk factor of PS = 1.4
 Bulk factor of PP = 1.9
 Specific gravity of PS= 1.04
 Specific gravity of PP = 0.9
- (c) Discuss Stripper plate ejection in detail 07
- Q.5** (a) Write C program for plasticizing capacity 03
 (b) Discuss in detail, cooling of Deep Cores 04
 (c) Determine the pitch and the pitch circle diameter for the interconnecting groove design , given the following information: Diameter of insert : 30mm ; Gap between inlet and outlet grooves : 4.5mm ; number of impressions : 12 ; depth of groove : 5mm. 07

OR

- Q.5** (a) Discuss difference between Finger Cam and Dog Leg Cam 03
 (b) Show the Design of Straight thru Dies. 04
 (c) Discuss Collapsible Core Design with a sketch 07



Fig(A)
 Matl: HDPE
 $\rho = 0.969 \text{ g/cm}^3$