

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– IV(NEW) EXAMINATION – SUMMER 2023****Subject Code:3142310****Date:25-07-2023****Subject Name:Injection Molding Technology****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) List advantages of Injection Molding. | 03 |
| | (b) List disadvantages of Injection Molding. | 04 |
| | (c) Define Nozzle. Explain standard Nozzle with neat sketch. | 07 |
| Q.2 | (a) Define (1) Maximum Daylight (2) Plasticizing capacity (3) Suck Back | 03 |
| | (b) Define (1) L/D ratio (2) compression ratio (3) helix angle (4) pitch | 04 |
| | (c) Compare: Injection Molding of Thermoset and Injection Molding of Thermoplastic | 07 |
| OR | | |
| (c) | Write down Causes and Remedies for: (1) Weld Lines (2) Burn marks | 07 |
| Q.3 | (a) What is Nitriding? List various Nitriding process for screw. | 03 |
| | (b) List advantages of Nitriding. | 04 |
| | (c) Explain PVT diagram for Injection Molding Process. | 07 |
| OR | | |
| Q.3 | (a) List the types of clamping system. Define clamping force. | 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) Explain start up, running and shut down process for Injection Molding of Thermoplastic. | 07 |
| Q.4 | (a) How melting occurs in screw? Explain in detail. | 03 |
| | (b) List Auxiliary equipment used in Injection molding process. | 04 |
| | (c) With the help of graph, explain Injection Cycle. | 07 |
| OR | | |
| Q.4 | (a) Explain about fluid heated barrel for Injection Molding of Thermoset. | 03 |
| | (b) Draw screw for Injection Molding of Thermoset. Label its terminology. | 04 |
| | (c) Explain need of chilling plant in Injection molding processing unit. Explain working of chilling plant with neat sketch. | 07 |

- Q.5** (a) What is preheating? Why Nylon required preheating before processing? **03**
- (b) List the types of Injection machines by Injection component or “End” **04**
- (c) Explain Reciprocating type Injection Molding process with neat sketch. **07**

OR

- Q.5** (a) Explain in brief about Nozzle alignment. **03**
- (b) Compare: Hydraulic Clamping and Toggle Clamping **04**
- (c) List the specification for Reciprocating screw type Injection Molding machine. **07**
