

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V (NEW) - EXAMINATION – SUMMER 2018

Subject Code:2152301

Date:04/05/2018

Subject Name:Injection Molding Technologies

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.

		MARKS
Q.1	(a) Define 1) Purging 2) Injection molding 3) Nozzle	03
	(b) Explain the start up and shut down procedure for injection molding.	04
	(c) State the advantages and disadvantages of Injection molding.	07
Q.2	(a) Write any two causes and remedies for the following problems occurring during injection molding 1) Flash 2) Short shot 3) Bubbles and voids.	03
	(b) List the advantages and disadvantages of toggle clamping.	04
	(c) Explain the steps in a reciprocating screw type injection molding machine.	07
OR		
Q.3	(c) List the types of injection machines and explain the single stage plunger type machine.	07
	(a) Explain briefly 1) Back pressure 2) Injection shot capacity.	03
	(b) Compare hydraulic and electrical drive for screws.	04
	(c) List the types of cylinder nozzles and explain the Standard nozzle with a neat sketch.	07
OR		
Q.3	(a) Draw the sketch of a screw used to process Nylon. Explain its importance.	03
	(b) Write a short note on pre-drying of material. List the plastic materials which need pre-drying.	04
	(c) With a neat sketch explain the ring type non return valve for reciprocating screws.	07
Q.4	(a) What is the importance of MFI while selecting material for injection molding? Which range of MFI grade material is used for injection molding?	03
	(b) Draw a neat sketch of double toggle clamping mechanism.	04
	(c) Draw a neat sketch of a standard screw and explain its terminologies.	07
OR		
Q.4	(a) Compare injection molding of thermoplastics with injection molding of thermosets.	03
	(b) List the injection end specifications for a reciprocating screw type injection molding machine.	04
	(c) With a neat sketch explain the melting of plastic in a screw.	07

- Q.5** (a) List some safety procedures to be observed during operation of injection molding machine. **03**
(b) Compare hydraulic and toggle clamping mechanism. **04**
(c) What is cycle time? Explain the injection cycle with a neat sketch. **07**

OR

- Q.5** (a) What is nitriding? Why is it required for screw and barrel? **03**
(b) A press with a hydraulic clamp has a 12 inch diameter clamping ram operating at a pressure of 3000psi. Calculate the clamping force. **04**
(c) With a neat sketch explain the gas assisted injection molding process. **07**
