

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2018****Subject Code:2152301****Date:27/11/2018****Subject Name:Injection Molding Technologies****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) (1) The L/D ratio for a general purpose screw is _____.	03
	(2) What is the function of a nozzle?	
	(3) Define melt flow index.	
Q.2	(b) (1) List any two molding defects of injection molding.	04
	(2) What is maximum day light of a mold?	
	(3) List the main types of clamping systems for injection molding.	
	(4) The clamping pressure should be more than the injection pressure (True & False)	
Q.3	(c) Define Injection Molding. List advantages and disadvantages of it.	07
Q.2	(a) Calculate the clamping force a press with a hydraulic clamp has a 600 mm diameter clamping cylinder and hydraulic line pressure is 2000kg/cm ² .	03
	(b) Explain predrying of thermoplastic materials.	04
	(c) Explain basic principles of Reciprocating screw machines in detail with neat sketch.	07
OR		
Q.3	(c) List various directional control valves used in Injection Molding machine. Explain any one with neat sketch.	07
Q.3	(a) What is nitriding? Explain importance of screw nitriding.	03
	(b) Explain the start up and shut down procedure for injection molding process.	04
	(c) Compare: Injection Molding of Thermoplastic with Injection Molding of Thermosets.	07
OR		
Q.3	(a) What are the major causes of breakdown of plunger cylinders?	03
	(b) Explain the injection cycle.	04
	(c) Define: (1) Injection shot capacity (2) plasticizing capacity (3) back pressure (4) maximum day light (5) compression ratio (6) injection pressure (7) minimum day light.	07
Q.4	(a) List the advantages and disadvantages of toggle clamping.	03
	(b) Explain the needle type shut-off nozzle	04
	(c) List various functions carried out by the microprocessor of Injection molding machine. Also Explain about close loop and open loop control system.	07

OR

- Q.4** (a) State the functions of three zones of the injection screw. **03**
(b) Compare hydraulic drive with electric drive. **04**
(c) Explain about Gas Assist Injection molding process. **07**

- Q.5** (a) Explain about material selection criteria for injection molding process. **03**
(b) Compare hydraulic clamping with toggle clamping (Any four points) **04**
(c) Explain about pressure profile in cavity with suitable graph. **07**

OR

- Q.5** (a) Give causes and remedies of the following defects: **03**
(1) Short-shots (2) warpage (3) weld line
(b) For PVC which type of screw tip is used? Why? Explain it with neat sketch. **04**
(c) Explain RIM process in detail. **07**

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