Seat No.: Enrolment No
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## **GUJARAT TECHNOLOGICAL UNIVERSITY**

BE - SEMESTER-V (NEW) - EXAMINATION - SUMMER 2017

Subject Code: 2152301 Date: 05/05/2017

**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
Λ1		Short Overtions	14
Q.1	1	Short Questions Define compression ratio	14
	2	The function of the mold runners is to:	
	_	a. vent trapped air	
		b. provide entry into the mold cavity	
		c. provide a path to the mold gates	
		d. define the mold parting line	
	3	Leaking out or flashing occurs at the:	
		a. mold gate	
		b. mold runner	
		c. sprue hole	
		d. parting line	
	4	Define Shot capacity.	
	5	Device is used to sense the	
		temperature of barrel.	
	6	Write any two article of PC made by injection moulding	
		process.	
	7	What do you mean by cold slug well.	
	8	Hydraulic clamping system is positive clamping system.	
		Say true or false.	
	9	Why hopper throat cooling is necessary for barrel?	
	10	Write the compression ratio of thermoset injection moulding machine.	
	11	Write any one causes and remedies of weldline defect.	
	12	Define maximum and minimum daylight.	
	13	The helix angle is directly proportional to output. Say	
		true or false	
	14	Define swept volume	
Q.2	(a)	Compare: Injection Molding of Thermoplastic with	03
-		Injection Molding of Thermosets	
	<b>(b)</b>	Define Injection Molding. List advantages and	04
		disadvantages of it	
	<b>(c)</b>	Explain about pressure profile in cavity with suitable	07
		graph	
		OR	

(c) List various directional control valves used in Injection

Molding machine. Explain any one with neat sketch

**07** 

Q.3	(a)	What are the effects of helix angle on output of machine?	03
	<b>(b)</b>	Draw neat sketch of screw used in injection molding and	04
	(c)	Explain its various terminology Define nozzle. List the types of nozzles used in injection molding. Explain any one with neat sketch	07
0.3	(a)	<b>OR</b> What is gate? Explain the different types of gate with	03
Q.3	(a)	neat sketch	U3
	<b>(b)</b>	List out the defects found in injection moulded article and explain any three in detail.	04
	(c)	What are the different types of clamping units present and explain it with neat sketch.	07
<b>Q.4</b>	(a)	Draw the PVT diagram and explain it briefly	03
•	<b>(b)</b>	Explain start up and shut down procedure of injection molding machine.	04
	(c)	Explain gas assisted injection molding with neat diagram. Along with advantages.	07
		OR	
Q.4	(a)	Explain tie bar less machine with a brief working principle	03
	<b>(b)</b>	List out the types of Gas assisted injection moulding process? Explain over flow process in detail.	04
	(c)	Describe Reaction Injection Moulding process and its applications	07
Q.5	(a)	Explain nitriding process done on different injection molding machine part	03
	<b>(b)</b>	How melting of plastic occurs in screw? Explain in detail	04
	(c)	Explain the metal injection moulding in detail with its advantages.	07
		OR	
Q.5	(a)	What is importance of mould temperature in injection moulding machine.	03
	<b>(b)</b>	For screw Compare : Hydraulic Motor Drive with	04
	` /	Electric Motor Drive	
	(c)	Differentiate between Hydraulic and Toggle clamping systems	07

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