Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V(NEW) EXAMINATION – SUMMER 2022

Subject Code:3152309 Date:13/06/2022

Subject Name:Plastic Mold & Die Design

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.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Define: i) Impression; ii) Locating ring; iii) Spacer block;	**03**
	(b)	Fill in the blanks: i) Core and cavity is made out of small steel block, is called as _____ ii) _____ receives the plastic melt from the machine nozzle. iii) _____ gate is used for single impression tubular shaped moldings. iv) _____ ejection is used for thin walled components.	**04**
	(c)	Explain the construction details of three plate mould with neat figure.	**07**
Q.2	**(a)**	List different types of ejection system.	**03**
	(b)	What are the main differences between two plate and three plate mould?	**04**
	(c)	Explain cooling insert-bolster assembly.	**07**
		OR	
	(c)	Explain cooling integer type mold.	**07**
Q.3	**(a)**	Describe split mould.	**03**
	(b)	List the different types of split mould actuation methods.	**04**
	(c)	Explain finger cam actuation with neat figure.	**07**
		OR	
Q.3	**(a)**	Describe angled-lift splits.	**03**
	(b)	Explain guiding & retention of splits.	**04**
	(c)	Explain dog-leg cam actuation with neat figure.	**07**
Q.4	**(a)**	What are the different methods of thread forming?	**03**
	(b)	Explain briefly unscrewing type mold systems.	**04**
	(c)	What are the different types of multi daylight mould?	**07**
		OR	
Q.4	**(a)**	Discuss about the feed system.	**03**
	(b)	What are the alternative designs of moulds for internal threaded components for withdrawing the moulding?	**04**
	(c)	Calculate runner efficiency for fully round, half round, trapezoidal, modified trapezoidal, hexagonal, rectangular and square gates.	**07**

Q.5	**(a)**	What are the stages involved in extrusion die design procedure?	**03**
	(b)	How the extrusion dies are classified?	**04**
	(c)	Calculate the volumetric output of extruder & velocity of melt for the following: Extruder size = 65mm; Extruder output = 60 kg/hr; Outside diameter of pipe = 90mm; Thickness of pipe = 4.5mm; Material = HDPE; Density of Solid = 0.955 g/cc; Density of melt = 0.81 g/cc;	**07**

OR

Q.5	**(a)**	Discuss about sprue pullers.	**03**
	(b)	Explain briefly about hot runner mould.	**04**
	(c)	Explain in-line or straight-through dies.	**07**

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