Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. - SEMESTER – VII • EXAMINATION – WINTER 2012

Subject code: 172302 **Date: 31/12/2012**

Subject Name: Plastic Mould and Die Design - I

Time: 10.30 am - 01.00 pm **Total Marks: 70**

Instructions:

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Design a hand injection mould for the product shown in fig[a].	**07**
	(b)	Draw a hand injection mould for the product shown in fig[a]	**07**
Q.2	**(a)**	Differentiate between insert and integer type moulds	**07**
	(b)	Fill in the blanks: 1. _____gate is preferred for acrylics. 2. Pin ejection is not suitable for _____ 3. Diaphragm gate is used for _____ 4. Function of Lathe is _____ 5. To make threads in a mould plate, _____is used. 6. _____material is used for guide pins 7. Material used for ejector grid is _____	**07**
		OR	
	(b)	Calculate the shot capacity of the injection moulding machine if a product of weight 100 gms is to be moulded in PP and a 10 impression mould is desired. Assume: Bulk factor of PS = 1.9 Bulk factor of PP = 1.92 Specific gravity of PS = 1.04 Specific gravity of PP = 0.90	**07**
Q.3	**(a)**	Define: Runner, Gate, Ejection ; Guide pin ; sprue pillar; bolster;insert	**07**
	(b)	Discuss sleeve ejection	**07**
		OR	
Q.3	**(a)**	Discuss requirements of a gate	**07**
	(b)	Design a rectangular edge gate for a PE box whose dimensions are : length = 150 mm ; width = 80mm ; depth = 50mm; wall thickness = 2 mm. take n = 0.6	**07**
Q.4	**(a)**	Discuss functions of push back pin and ejector pin.	**07**
	(b)	What is Milling? Discuss applications in a mould making shop.	**07**
		OR	
Q.4	**(a)**	Discuss applications of ring gate and overlap gate	**07**
Q.4	**(b)**	Discuss polishing of mould plates and parts	**07**
Q.5	**(a)**	Discuss actuation of a stripper plate.	**07**
	(b)	For the product shown in fig[b], discuss and design the most suitable feed system.	**07**
		OR	
Q.5	**(a)**	What is the difference between shaping and planning?	**07**
	(b)	Tick the correct answer:	**07**

1. Alloy steel used for inserts is (a) EN8 (b) EN16 (c) EN24 (d) EN48
2. For internal polishing of barrels , we use (a) grinding (b) reaming (c) honing
3. OHNS is (a) Oil hardened nitrided steel
   (a) Oil hardened nickel steel
   (b) Oil Hardened non shrinkable steel.
   (c) None of these
4. Facing is done by (a) Milling mc. (b) Grinding Mc. (c) Lathe Mc. (d) Drilling mc.
5. Material of bolster is (a) EN8 (b) EN16 (c) MS (d) none of these
6. Tab Gate is used for (a) solid mouldings (b) Solid rectangular mouldings (c) Hollow mouldings (d) none of these
7. Sleeve ejection is used for (a) solid mouldings (b) hollow mouldings (c) rectangular mouldings (d) tall hollow mouldings

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