GUJARAT TECHNOLOGICAL UNIVERSITY
BE- VIIIth SEMESTER–EXAMINATION – MAY- 2012

Subject code: 182301   **Date: 10/05/2012**

Subject Name: Plastic Mould and Die Design-II

Time: 10:30 am – 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.**

Q.1	**(a)**	Design a Fully Automatic Injection Machine mould for product shown in fig[a].show feed system calculations	**07**
	(b)	Draw the mould designed above.	**07**
Q.2	**(a)**	For the product shown in fig[b], design a suitable split mould.	**07**
	(b)	Write C program for shot capacity.	**07**

<div align="center">OR</div>

	(b)	Fill in the blanks:	**07**

1. Bubbler system is used for _____products
2. Material of heat rods is _____
3. For integer cooling of cores, _____is most efficient method.
4. Dog leg cam is used where_____
5. Shrinkage is defined as _____
6. Sprue puller is used for _____
7. locating ring is used for _____purpose

Q.3	**(a)**	Discuss about heat pipes.	**07**
	(b)	Discuss baffle cooling in detail with diagrams.	**07**

<div align="center">OR</div>

Q.3	**(a)**	Write C program for plasticizing capacity.	**07**
	(b)	For the product shown in fig[b], design cooling syetm for core and cavity.	**07**

Q.4	**(a)**	Determine the pitch and the pitch circle diameter for the interconnecting groove design , given that: Diameter of insert = 45 mm Gap between inlet and outlet grooves = 4 mm Number of impressions = 20 Depth of groove = 3mm	**07**
	(b)	Discuss Helical channel system for core insert cooling	**07**

<div align="center">OR</div>

Q.4	**(a)**	Define : water ways, internal undercut, layout, split core ,circuit , Finger cam, length bolts	**07**
	(b)	Write a C program for heat to be extracted from the tool per hour	**07**

Q.5 **(a)** The shot capacity of an injection moulding machine is 500 gms. The product shown in fig [b] is to be moulded on this machine. Work out the no.of impressions that can be moulded in a single shot.   **07**

Given that :
Bulk factor of PS = 1.9
Bulk factor of ABS = 1.8
Specific gravity of PS = 1.04
Specific gravity of ABS= 1.0

(b) Discuss the concept of collapsible cores.   **07**

<div align="center">OR</div>

Q.5 **(a)** Given that shrinkage of PP is 0.01mm/mm, work out shrinkage of core and cavity for the product shown in fig[a].   **07**

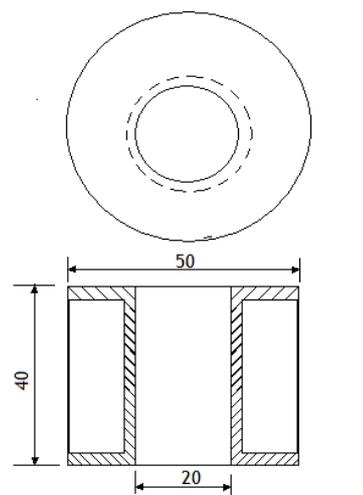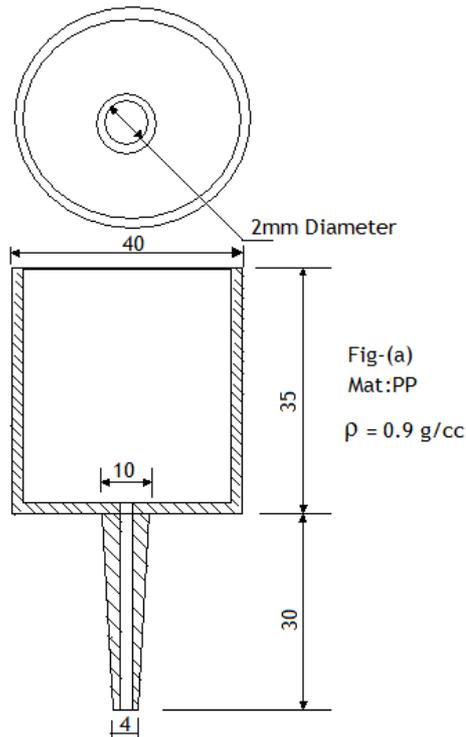**(b)** Ejection techniques for internal undercuts   **07**

2mm Diameter

40

35

30

10

4

Fig-(a)
Mat:PP

ρ = 0.9 g/cc

50

40

20

Fig-(b)
Mat: HDPE
ρ = 0.96 g/cc
2mm wall thickness throughout

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