Seat No.: ________ Enrolment No.___________

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – WINTER 2013

Subject Code: 172601 **Date: 26-11-2013**

Subject Name: Rubber Equipment 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)**	**Answer the following.**	**(14)**
	(i)	Which points should be considered while designing the feed rollers?	
	(ii)	The extrusion rate & die swell depends upon which factors?	
	(iii)	List the different ways to shorten the fill time for plunger type transfer mould.	
	(iv)	Which factors should be considered for cryogenic deflashing?	
	(v)	List the important aspects for practical die design.	
	(vi)	How the internal cavity pressure defined? Write its approximate value for general, thin & thick product.	
	(vii)	How you can calculate the cycle time for injection moulding process?	
Q.2	**(a)**	Explain in detail about Die geometry.	**(07)**
	(b)	State the general design rules for Die.	**(07)**
		OR	
	(b)	**Answer the following.**	
	(i)	Write the classification of Die according to flow.	**(04)**
	(ii)	List the properties required for materials used for extrusion die.	**(03)**
		OR	
Q.3	**(a)**	Describe about the design of extruder head.	**(06)**
	(b)	Explain about the flow mechanism in rubber extruder.	**(04)**
	(c)	Write the effects of screw & barrel temperature on rubber compound.	**(04)**
		OR	
Q.3	**(a)**	How the cooling takes place in the extruder? Explain in detail.	**(07)**
	(b)	Short note on “Single roll roller die”.	**(07)**
Q.4	**(a)**	List the points which should be kept in mind while designing the runner in transfer mould. Discuss all the points in detail.	**(07)**
	(b)	Short note on “Thermal Consideration used for compression moulding”.	**(07)**
		OR	
Q.4	**(a)**	Short note on Pressure consideration for transfer mouling.	**(07)**
	(b)	How you can calculate the strength of cavity?	**(03)**
	(c)	List the factors affecting the design & construction of compression mould.	**(04)**
Q.5	**(a)**	Discuss the machine control & process variables for injection moulding machine used in rubber industry.	**(07)**
	(b)	List the injection moulding machine variables which influence mould filling. Explain all in detail.	**(07)**
		OR	

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Q.5 **(a)** Give the comparison between FIFO vs FILO. **(08)**

(b) Define the term (i) Shot capacity (ii) Draft angle (iii) MFI (iv) Locking force. **(04)**

(c) List the points which influence the injection moulding machine selection & economy. **(02)**

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