Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI(NEW) EXAMINATION – WINTER 2022

Subject Code:3162603 Date:13-12-2022

Subject Name:Rubber Equipment 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.**

Q.1	**(a)**	Explain the importance of Parting Line while designing a mould.	**03**
	(b)	List the factors affecting design of mould.	**04**
	(c)	Show different roll configurations for calender machine and discuss about the same.	**07**
Q.2	**(a)**	Write the assumptions given by Ardichvilli for the calculation of roll separating force for calender.	**03**
	(b)	List the compounding related problems for calender machine with their possible causes and remedies.	**04**
	(c)	What steps you will take to avoid accidents on a rubber mixing mill?	**07**
		OR	
	(c)	Describe in detail about ram construction for internal mixer.	**07**
Q.3	**(a)**	Define the term fill factor. Write the range of fill factor with justification.	**03**
	(b)	List the basic requirements for successful operation through die.	**04**
	(c)	Write the short note on extrusion barrel construction.	**07**
		OR	
Q.3	**(a)**	Write the function of brake shoe and reduction pulley in mixing mill.	**03**
	(b)	Discuss about the effects of screw and barrel temperature on rubber compound.	**04**
	(c)	Write short note on High Intensity Mixing Screw used in Rubber industry.	**07**
Q.4	**(a)**	Give the detailed description for the mechanical press having following designation: S V A 2 – 1000 + 600 – 1800 x 1600	**03**
	(b)	Describe any two ram driving mechanisms with diagram for press.	**04**
	(c)	Explain the pressure consideration related to transfer moulding.	**07**
		OR	
Q.4	**(a)**	Write in brief about the gap frame press.	**03**
	(b)	The weight of a 350 mm plunger of an accumulator is 4500 kg. What additional weight is to be placed upon it to develop a hydraulic pressure of $42 kg/cm^2$?	**04**
	(c)	Which points should be kept in mind while designing the runner in transfer mould? Explain each point in detail.	**07**
Q.5	**(a)**	Write about “Ejection” Process for compression nould.	**03**
	(b)	Write in brief about cryogenic deflashing.	**04**
	(c)	List the injection moulding machine variables which influence mould filling. Explain all in detail.	**07**
		OR	
Q.5	**(a)**	Define the term (i) Compression Ratio (ii) Starts (iii) Lead.	**03**
	(b)	Discuss about Strength of the Cavity and Guide system design for compression mould.	**04**

(c) Discuss the machine control & process variables for injection moulding machine used in rubber industry. **07**

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