Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–V (NEW) EXAMINATION – WINTER 2020

Subject Code:3152612 Date:22/01/2021

Subject Name:Reclaimed Rubber & its Technology

Time:10:30 AM TO 12:30 PM Total Marks: 56

Instructions:

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

			MARKS
Q.1	**(a)**	What do you mean by the term 'Reclaim Rubber'?	**03**
	(b)	How Reclaim Rubber is different than Crum Rubber? Give explanation in brief.	**04**
	(c)	Explain major scope of tire recycling in developing countries and give detail applications of Whole tire Reclaim.	**07**
Q.2	**(a)**	What is essential requirement for reclamation of rubber? explain with example.	**03**
	(b)	What are the disadvantages of reclaimed rubber?	**04**
	(c)	Describe in detail about structure and properties of sulfur crosslinks.	**07**
Q.3	**(a)**	Give different types of reclaim rubber.	**03**
	(b)	Describe microwave devulcanization technique.	**04**
	(c)	Explain in detail about digester process and thermal process.	**07**
Q.4	**(a)**	Explain use of devulcanized rubber in civil applications.	**03**
	(b)	Write brief note on "Devulcanisation of Butyl rubber"	**04**
	(c)	Discuss in detail about reclaimator process and pan process.	**07**
Q.5	**(a)**	What is grafting process? Write about it with suitable example.	**03**
	(b)	Write about the cure characteristics of butadiene rubber- whole tire reclaim blend.	**04**
	(c)	How can you evaluate quality of reclaim rubber with chemical analysis tests? Discuss in detail.	**07**
Q.6	**(a)**	What are the different devulcanising agents used in reclaimation process?	**03**
	(b)	Describe about mechanical properties of SBR- whole tire reclaim rubber.	**04**
	(c)	How can you control processing behavior of devulcanized rubber? Also write about the key parameters which affects the processing of it.	**07**
Q.7	**(a)**	What are the advantages of CR/ MA-g- WTR blends?	**03**
	(b)	Write a brief note on Effect of silane coupling agent on SBR/WTR blend.	**04**
	(c)	Discuss in detail about Natural rubber- Whole tire Reclaim blend in detail with physical properties.	**07**
Q.8	**(a)**	List the advantages of NBR/ MA-g- WTR blends.	**03**
	(b)	Describe the effect of silane coupling agent on CR-WTR blend.	**04**
	(c)	Explain about NBR/WTR blend in detail with its physical properties.	**07**

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