Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE SEMESTER-IV • EXAMINATION – SUMMER-2015

Subject Code: 143602 **Date: 01/06/2015**

Subject Name: Rubber Chemistry & Natural Polymers

Time: 10.30AM-01.00PM **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)**	Write chemical structures of following: EPDM, Polyurethanes, NBR, Buna-S, Natural Rubber, Neoprene, hypalon	**07**
	(b)	Write function of following: accelerator, activator, curing agent, antioxidant, extender oils, fillers, pigments.	**07**
Q.2	**(a)**	Write in detail preparation, properties and uses of Polyurethanes.	**07**
	(b)	What is vulcanization? Explain Conventional, Semi Efficient and Efficient Vulcanization.	**07**
		OR	
	(b)	Write short notes on any two a) Styrene b) Butadiene c) Isoprene d) Isobutylene	**07**
Q.3	**(a)**	Write a detailed note on rubber compounding and mastication.	**07**
	(b)	Detailed note on the disaccharides and polysaccharides with examples and structures?	**07**
		OR	
Q.3	**(a)**	Draw a flow chart for manufacturing of butyl rubber and also state its applications.	**07**
	(b)	Write a note on NBR and describe the synthesis of acrylonitrile also.	**07**
Q.4	**(a)**	What is natural rubber? How is it extracted from latex? What are the drawbacks of NR?	**07**
	(b)	Explain E and S-SBR. Write its manufacture process in detail.	**07**
		OR	
Q.4	**(a)**	What is the chemical name of Neoprene? Write a note on Neoprene including synthesis of its monomer.	**07**
	(b)	What is the chemical name of EPDM? Write a note on production, properties and applications of EPDM .	**07**
Q.5	**(a)**	Write in detail about comparision of sulphur and peroxide vulcanization.	**07**
	(b)	Write are biopolymers? Write their classification, application and environmental benefits.	**07**
		OR	
Q.5	**(a)**	What is Chitosan? Write reaction for the preparation of chitosan from chitin and its application.	**07**
	(b)	Write notes on any two: Rubber tapping, Natural Rubber Collection & preservation, Synthetic Polyisoprene, Cellulose and its derivatives	**07**

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