Seat No.: ____

Enrolment No.____

GUJARAT TECHNOLOGICAL UNIVERSITY

		BE - SEMESTER-IV • EXAMINATION – WINTER • 2014	
	Subje	ect Code: 142604 Date: 02-01-2015	
	Subje	ect Name: Introduction to Rubbers and Rubbery Materials	
	Time	: 02:30 pm - 05:00 pm Total Marks: 70	
	Instru	ctions:	
		1. Attempt all questions.	
		 Make suitable assumptions wherever necessary. Figures to the right indicate full marks 	
		5. Tigures to the fight indicate full marks.	
Q. 1	Answe	er the following.	14
	(i)	Define the term: Polymerization	
	(ii)	List the name of compounding ingredients used in rubber industry.	
	(iii)	Write the difference between Natural Rubber and Synthetic Natural Rubber.	
	(iv)	What do you mean by Mastication?	
	(v)	Give the synthesis reaction of Polybutadiene Rubber (PBR).	
	(vi)	Draw the structure and write the chemical name of Natural Rubber.	
	(vii)	Explain the term: Reclaimed Rubber	
Q. 2	(a)	Give a detailed classification of Polymers.	07
Q. 2	(b)	Discuss the procedure for preparation of Dry Natural Rubber in detail.	07
		OR	
	(b)	Short note on "Epoxidized Natural Rubber"	07
Q. 3	(a)	Explain the theory of Sulfur Vulcanization with schematic representation.	07
	(b)	Discuss about classification on Fillers used in Rubber industry.	07
0.2	(\mathbf{n})	OR Draw the section showing the features of two-roll open mill and explain the mixing	07
Q. 3	(<i>a</i>)	process.	07
	(b)	Short note on Antidegradants.	07
Q. 4	(a)	Draw the structure of Nitrile Rubber. Explain the influence of Acrylonitrile monomer on properties of Nitrile Rubber.	07
	(b)	Write about the synthesis reaction, chemistry, properties and applications of Styrene Butadiene Rubber (SBR).	07
		OR	
Q. 4	(a)	List the basic types, properties, applications and synthesis reaction of Chloroprene Rubber.	07
	(b)	Draw the structure of Silicone Rubber and write its advantageous properties.	07
Q. 5	(a)	Discuss the Rubber elasticity in Shear stress with schematic representation.	07
	(b)	Explain the heat resistance property of rubber.	07
		OR	
Q. 5	(a)	Describe the stress-strain relationship for compression stress in Rubber.	07
	(b)	Explain about Glass Transition Temperature (Tg) and molecular factors affecting Tg of Rubbers.	07
