Seat 1	No.:	Enrolment No	
		GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-III • EXAMINATION – WINTER 2013	
Subi	iect C	Code: 132602 Date: 07-12-2013	
•	•	Name: Rubber Technology	
_		30 pm – 05:00 pm Total Marks: 70	
	ıctions	<u> </u>	
		Attempt all questions.	
		Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q. 1	Answer the following.		(14
Ų. I	(i)	List the name of principal regions of mature trunk of the Hevea Brasiliensis tree.	(17
	(ii)	Write the function and importance of 'Lignin' as a natural polymer.	
	(iii)	Write the characteristics of C-C bond in polymer structure.	
	(iv)	What do you mean by thermal Re-Randomization during orientation process?	
	(v)	Why Teflon is having excellent thermal stability? Exploit the following terms: (i) adopthent (ii) adopthent	
	(vi) (vii)	Explain the following terms:-(i) adsorbent (ii) adsorbate. Write the reaction mechanism for Lactonitrile Process.	
Q. 2	(a)	List the impurities remaining from the polymerization reaction. Explain any three in	(07
Q. 2	(a)	detail.	(07
Q. 2	(b)	Draw the structure of the Hevea Brasiliensis seed and its mode of germination. Explain it in detail.	(07
		OR	
	(b)	Define the term" Tapping". Explain the processing of NR latex after tapping.	(07
Q. 3	(a)	Give the classification of protein. Explain their importance as a natural polymer.	(07
	(b)	Draw the Schematic diagram showing axes of orientation. Discuss it in detail. OR	(07
Q. 3	(a)	Describe the chemical structure of cellulose. Explain the xanthate process for regeneration of cellulose.	(07
	(b)	Explain the following terms: (i) Cold stretching (ii) Wet Stretching.	(07
Q. 4	(a)	List the process for Synthesis of Vinyl Acetate monomer. Explain any one process with reaction mechanism.	(07
	(b)	Discuss the mechanism of oxidative degradation.	(07
	. ,	OR	
Q. 4	(a)	Write the characteristics of styrene monomer. Discuss about its synthesis by oxidation process with reaction mechanism.	(07
	(b)	Explain the polymer degradation involving substituent groups with the help of suitable example.	(07
Q. 5	(a)	Discuss the effects of following determinates on polymer crystallinity: (i) Polar group (ii) substituent group (iii) Plasticizer.	(07
	(b)	Answer the following.	
	(i)	Explain the formation of porous structure of polymers by thermal treatment.	(03
	(ii)	Write the four major reactions in phenolic chemistry. OR	(04
Q. 5	(a)	List the factors affecting Tg of polymer. Explain any two in detail.	(07
	(b)	Answer the following.	
	(i)	Define the term:" Porosity". List parameters for estimation of porosity in polymer.	(03

Give the structure of amino resin. Write the advantage & disadvantage of amino resins

(04)

(ii)

over phenolic resins.