BE - SEMESTER-IV • EXAMINATION - SUMMER • 2014			
S	ubject	Code: 142604 Date: 25-06-2014	
S	ubject	Name: Introduction to Rubbers and Rubbery Materials	
	-	0.30 am - 01.00 pm Total Marks: 70	
	nstructio	•	
	1.	Attempt all questions.	
		Make suitable assumptions wherever necessary.	
	3.	Figures to the right indicate full marks.	
0 1	Q. 1 Answer the following.		
Q. 1	i	Write about the atmospherical conditions required for the growth of Hevea	14
	•	Brasiliensis tree.	
	ii	What do you mean by Hysteresis energy Loss?	
	iii	Write any two structural requirements to exhibit effective rubbery properties.	
	iv	Draw the structure of Neoprene rubber and write its advantageous properties.	
	V	Define the term "Polymerization".	
	vi	How dry natural rubber is manufactured from NR Latex?	
	vii	Describe the term "mastication" and write its importance.	
Q. 2	a	Shaw the schematic representation of rubber blocks in shear stress and derive	07
V. -	•	the equation for shear stiffness.	07
Q. 2	b	Define the term "Glass Transition Temperature". List the factors determining	07
		Tg and explain it in detail.	
		OR	
	b	Write about the Heat Resistance property of Rubber and the factors affecting	07
		it in detail.	. –
Q. 3	a	List the different type of mixing equipment and explain about any one.	07
	b	Discuss about Sulfur vulcanization with schematic representation. OR	07
Q. 3	a	Write the basic types of compounding ingredients used in rubber industry	07
Q. 3	а	with their functions and give example of each.	07
	b	Short note on Non-sulfur vulcanization systems.	07
Q. 4	a	Define the term "Polymer". Give a detailed classification of Polymers.	07
	b	Define the term "Latex". Write about the processing of Natural Rubber Latex	07
		after Tapping.	
		OR	
Q. 4	a	What do you mean by Polymer Crystallinity? Discuss about X-Ray	07
	_	Diffraction for polymers with schematic diagram.	
	þ	Answer the following.	05
	i	Explain the production of Pale crepe grade of Natural Rubber and write its	05
	ii	applications. List any four modified forms of Natural Rubber.	02
Q. 5	a	Give the synthesis reaction of Butyl Rubber. Explain its chemistry, properties	07
Q. J	a	and applications.	U1
	b	Write about abbreviation, repeat unit structure, grades, properties and	07
		applications for Silicon Rubber.	- •
		OR	
Q. 5	a	List the name and structure of monomers used in synthesis of Ethylene	07
		Propylene Diene Methylene Rubber EPDM. Discuss its chemistry, properties	
	_	and Applications.	c =
	b	Give the synthesis reaction of Nitrile Rubber. Explain the importance of	07
		monomer ratio on properties of Nitrile Rubber.	

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