Seat No.:	Enrolment No.

## GUJARAT TECHNOLOGICAL UNIVERSITY

BE- V<sup>th</sup> SEMESTER-EXAMINATION – MAY/JUNE - 2012

•		ode: 152605 Date: 07/06/20	012
-		Name: Rubbers: Manufacturing & its Applications 30 pm – 05:00 pm  Total Marks	: 70
Instr		•	
1.	Atte	empt all questions.	
	2. Make suitable assumptions wherever necessary.		
3.	Figu	res to the right indicate full marks.	
Q.1	(a)	Answer the following.	06
	1.	Write the structure of SBR	
	2.	List the properties which improve with increasing ACN content in NBR	
	3.	Why Sulphur is not used as a vulcanizing agent for Chloroprene Rubber (CR)?	
	<b>(b)</b>	Explain the Chemistry of Silicone Rubber.	08
Q.2	(a)	Write the applications of rubber in Automobile engineering & Chemical Engineering field.	07
	<b>(b)</b>	Discuss the general Overview for Cellular rubber Products.  OR	07
	<b>(b)</b>	Discuss the general Overview for Tyre.	<b>07</b>
Q.3	(a)	Answer the following.	
	(i)	Discuss in detail about the properties of Raw Natural Rubber.	06
	(ii) (b)	Write in brief about the factors affecting heat resistance of rubber.  How is relative molecular mass determined by end group analysis method?  OR	04 04
<b>Q.3</b>	(a)	Answer the following.	
	(i)	Explain the curing system of IIR in detail.	<b>06</b>
	(ii)	Explain the temperature dependence of elastic moduli of Caoutchouc, Elastomer	04
	<b>(b)</b>	and Duromer. Explain the term "Gel Rubber" with its classification.	04
Q.4	(6)	Answer the following.	U-T
	(a)	Give the Classification of Rubber additives used in rubber compounds and list their general features.	07
	<b>(b)</b>	Explain the Free-radical mechanism steps by giving reactions.	<b>07</b>
		OR	
Q.4	(a)	Write about Isoprene monomer & its importance in polymer field and explain the method of production in detail.	07
	<b>(b)</b>	Short note on Emulsion Polymerisation.	<b>07</b>
Q.5	(a)	Explain the Solubility parameter with respect to Polymer Solution	<b>07</b>
	<b>(b)</b>	"Rubber is a versatile material." Justify the statement in terms of its applications in general.	07
o -		OR	a <b>-</b>
Q.5	(a)	Explain the ultracentrifuge method to determine the relative molecular mass	07
	<b>(b)</b>	Calculate the compound cost of Microcellular Rubber Sheet and also calculate the specific gravity of this compound.	07

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