Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III(New) • EXAMINATION – WINTER 2016

Subject Code:2132602 **Date:06/01/2017**

Subject Name:Rubber Technology

Time:10:30 AM to 01:00 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1		Answer the following.	14
	1	List the principal sources of Natural Rubber.	
	2	Write the effect of 'Bond strength' on polymer properties.	
	3	Mention the basic mechanism of polymer degradation.	
	4	Define the term: Sorption.	
	5	What is the function of Hard Resins?	
	6	Give the major classification of Protein.	
	7	What is the importance of C-C bond in polymer structure?	
	8	Write the function of Endosperm region in Hevea Brasiliensis seed.	
	9	Name the chemicals used for production of Isoprene monomer.	
	10	List the methods for synthesis of Styrene monomer.	
	11	Mention the parameter which governs the thermal stability of polymer.	
	12	Give the advantages of Regenerated cellulose.	
	13	Give the effect of Orientation on Optical properties of polymer.	
	14	List the preferable atmospheric conditions for cultivation of Hevea Brasiliensis tree.	
Q.2	(a)	What do you mean by Warm Stretching? Explain in brief.	03
	(b)	Show the schematic diagram of mature Trunk of Hevea Brasiliensis tree and give the function of important regions of the trunk.	04
	(c)	Write in detail about Isomerism involving Asymmetric carbon atom with the help of schematic representation.	07
		OR	
	(c)	Explain the term: Copolymer. Write about various types of Copolymers with their schematic representation.	07
Q.3	(a)	Write about the importance of coal and kerogen as a Natural polymer.	03
	(b)	How Regenerated protein is obtained? Write its applications also.	04
	(c)	Write a short note on Chemical deterioration in polymers.	07
		OR	
Q.3	(a)	Write down a brief note on Lignin.	03
	(b)	Draw the chemical structure of Starch and give the description of two types of polysaccharides which it contains.	04
	(c)	Describe the oxidative degradation of polystyrene and polyethylene with their chemical reactions.	07
Q.4	(a)	Write about the properties and application of Epoxy Resins.	03
	(b)	Explain the mechanism of sorption of inert Sorbates on polymers.	04
	(c)	Describe the importance of all halogen elements in Polymer chemistry and Organic chemistry.	07
		OR	

Q.4	(a)	Give a brief note on Silicone Resins.	03
	(b)	List the methods of forming porous structure of polymer and explain any one.	04
	(c)	"Oxygen is an important element in polymer chemistry". Justify the statement.	07
Q.5	(a)	Write about the effect of Polar group on Crystallinity of Polymers.	03
	(b)	How the Glass Transition temperature (Tg) is an important parameter for polymers? Give reason.	04
	(c)	List the ways for production of Butadiene monomer and explain any one with reaction mechanism.	07

OR

Q.5	(a)	How crystallinity affect the Permeability property of polymers?	03
	(b)	Write about the effect of Bulky substituent on Glass Transition temperature (Tg) of polymers.	04
	(c)	Give reaction mechanism for synthesis of Acrylonitrile monomer by Environment friendly route and explain the process in detail.	07

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