Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– III EXAMINATION – SUMMER 2015

Subject code: 132602 **Date: 09/06/2015**

Subject Name: Rubber Technology

Time:02.30pm-05.00pm **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)**
	(i)	Define and explain the term: "Tapping".	
	(ii)	Give the chemical reaction for Phillips process.	
	(iii)	Write the importance of Shellac as a natural polymer.	
	(iv)	What do you mean by Polymer degradation?	
	(v)	Write about the mechanism of Orientation in polymers.	
	(vi)	Write the importance of following additives in polymer compounding: (i) Stabilizers (ii) Biocides	
	(vii)	Explain the concept of Sorption in brief.	
Q. 2	**(a)**	Draw the schematic diagram showing Bud-grafting process for Hevea Brasiliensis tree and explain it in detail.	**(07)**
Q. 2	**(b)**	Write about the Oxidative degradation in detail by giving reaction mechanisms.	**(07)**
		OR	
Q. 2	**(b)**	List the basic types of Polymer degradation and explain it in detail with schematic representation.	**(07)**
Q. 3	**(a)**	Discuss about the importance of mobility during Orientation of polymers.	**(07)**
	(b)	Explain the importance of Fluorine element in chemical composition of Polymers.	**(07)**
		OR	
Q. 3	**(a)**	Draw the schematic diagram for Axes of Orientation and explain it in detail.	**(07)**
	(b)	List the monomeric impurities remains in final polymer composition and explain about any two.	**(07)**
Q. 4	**(a)**	Describe in detail about Glass Transition Temperature (Tg).	**(07)**
	(b)	Write the name of methods for Synthesis of Styrene monomer by giving necessary reaction mechanisms.	**(07)**
		OR	
Q. 4	**(a)**	Discuss in detail about the effect of Crystallinity on properties of Polymers.	**(07)**
	(b)	List the methods for production of Isoprene monomer and explain any one with reaction mechanism.	**(07)**
Q. 5	**(a)**	Give the basic classification of Proteins and also explain its importance as a Natural polymer.	**(07)**
	(b)	Explain about the production of Amino resins in detail.	**(07)**
		OR	
Q. 5	**(a)**	Discuss in detail about the importance of Cellulose as a Natural polymer and write about synthesis of regenerated Cellulose.	**(07)**
	(b)	Write about advantages, disadvantages and applications of Phenolic resins.	**(07)**

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