Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– III (NEW)EXAMINATION – SUMMER 2015

Subject code: 2132601 **Date:27/05/2015**

Subject Name: Basic Rubber Science

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	**(a)**	Discuss in detail about the characteristics of colloidal solution.	**07**
	(b)	Answer the following	
	i	What do you mean by Q-class rubber? Also give its example with structure.	**04**
	ii	Which conclusions can be drawn regarding polycondensation?	**03**
Q.2	**(a)**	Discuss in detail about the chain structure and chemical reactivity of rubber.	**07**
Q.2	**(b)**	Answer the following	
	i	Write about the sliding friction of rubber.	**04**
	ii	State the principle laws of floatation.	**03**
		OR	
Q.2	**(b)**	Discuss in detail about the solubility parameter.	**07**
Q.3	**(a)**	Write a short note on four elastic constant.	**07**
Q.3	**(b)**	Answer the following	
	i	Give the name of the apparatus used to measure the surface tension. Also draw its labeled diagram.	**04**
	ii	Define the given terms: (i)Conduction (ii) Convection (iii) Radiation	**03**
		OR	
Q.3	**(a)**	Discuss the various methods of density measurement for various types of substances including powders and liquids.	**07**
Q.3	**(b)**	Answer the following	
	i	Diffusion and solubility of compounding ingredients in rubber are of great practical interest- Explain this statement with suitable example.	**04**
	ii	Write in brief on kinetic friction.	**03**
Q.4	**(a)**	Explain the termination reaction of free radical polymerization.	**07**
Q.4	**(b)**	Discuss the salient features of bulk polymerization technique.	**07**
		OR	
Q.4	**(a)**	Discuss in detail about the suspension polymerization with its merits and demerits.	**07**

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Q.4	**(b)**	Discuss the salient features of solution polymerization technique.	**07**
Q.5	**(a)**	Write a short note on gel & emulsions.	**07**
Q.5	**(b)**	Discuss the dialysis method for purification of colloids.	**07**
		OR	
Q.5	**(a)**	Write in detail about the micelles and also give the comparison between micelles and colloidal solution.	**07**
Q.5	**(b)**	Differentiate the lyophilic sol and lyophobic sol.	**07**

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