Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– III EXAMINATION – SUMMER 2015

Subject code: 132601 **Date: 04/06/2015**
Subject Name: Basic Rubber Science
Time: 02.30pm-05.00pm **Total Marks: 70**

Instructions:

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

Q.1	**(a)**	Discuss in detail about the applications of colloids.	**07**
Q.1	**(b)**	Answer the following	
	i	List the characteristic properties of rubber. Define any three.	**04**
	ii	What do you mean by R-class rubber? Also give its example with structure.	**03**
Q.2	**(a)**	Discuss in detail about conditions for rubber like elasticity in polymers.	**07**
Q.2	**(b)**	Answer the following	
	i	Why Nitrile Rubber shows superior oil resistance among all dienes?	**04**
	ii	Write a brief note on translational motion.	**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 a name of apparatus used to measure the surface tension. Also draw its labeled diagram showing major components.	**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 a brief note on sliding friction.	**03**
Q.4	**(a)**	Discuss in detail about cationic polymerization.	**07**
Q.4	**(b)**	Answer the following	
	i	Write down advantages and disadvantages of bulk polymerization.	**04**
	ii	Explain term initiator.	**03**
		OR	
Q.4	**(a)**	Discuss in detail about anionic polymerization.	**07**

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Q.4	**(b)**	Answer the following	
	i	Write down advantages and disadvantages of solution polymerization.	**04**
	ii	Explain the term inhibitor.	**03**
Q.5	**(a)**	Write a short note on emulsions	**07**
Q.5	**(b)**	Explain about electrophoresis, electro-osmosis and isoelectric point.	**07**
		OR	
Q.5	**(a)**	Write about three types of colloids with examples.	**07**
Q.5	**(b)**	Explain preparation of colloidal solution by condensation method and chemical method respectively.	**07**

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