Seat No.: _____ Enrolment No.: _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III (New) EXAMINATION – WINTER 2018

Subject Code:2132601 **Date:01/12/2018**

Subject Name:Basic Rubber Science

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	**(a)**	What do you mean by R-class rubber? Give its two examples with their structures.	**03**
	(b)	Write down the general rules for polymer solubility.	**04**
	(c)	Discuss the conditions which are necessary for rubber like elasticity in polymers.	**07**
Q.2	**(a)**	Give the classification of polymer based on its structure with suitable examples.	**03**
	(b)	Differentiate the chain growth polymerization and step growth polymerization.	**04**
	(c)	Discuss in detail about the propagation step with respect to free radical polymerization.	**07**
		OR	
	(c)	Write a short note on emulsion polymerization technique.	**07**
Q.3	**(a)**	How you differentiate the terms ‘density’ and ‘relative density’?	**03**
	(b)	Define the term ‘friction’. Give the classification and effects associated with it.	**04**
	(c)	Discuss about the characteristics features of sinusoidal vibrations.	**07**
		OR	
Q.3	**(a)**	State the laws of floatation.	**03**
	(b)	What do you mean by shape factor? Show the steps to measure shape factor for rectangular block.	**04**
	(c)	Discuss in detail about the effect of compounding in transmissibility.	**07**
Q.4	**(a)**	State the Fourier’s law of heat conduction with its mathematical expression.	**03**
	(b)	What is the meaning of ‘Convection’? Write about the classification of it.	**04**
	(c)	Write about the different modes of mass transfer. And write the different applications involving it.	**07**
		OR	
Q.4	**(a)**	Write about ‘Thermal conductivity’ with its unit.	**03**
	(b)	Discuss in brief about absorptivity, reflectivity and transmissivity.	**04**
	(c)	Derive the equations for mass and molar concentrations with ideal gas mixture theory.	**07**
Q.5	**(a)**	Write about the Tyndall effect exhibited by colloidal solution.	**03**
	(b)	Give any four differences between True solutions and Colloidal solutions.	**04**
	(c)	Write a short note on Pigment.	**07**

OR

Q.5	**(a)**	Draw the diagram of a dialysis cell used for the purification of colloidal solution.	**03**
	(b)	What do you mean by Gel? Give importance of it.	**04**
	(c)	Explain in detail about Refractive index of polymer.	**07**

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