GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-III(New) EXAMINATION – SUMMER 2016

Subject Code:2132601			Date:27/05/2016	
Subj	ect N	Name:Basic Rubber Science		
Time:10:30 AM to 01:00 PM Total M			Fotal Marks: 70	
Instru	ction	s:		
	1.	Attempt all questions.		
	2.	Make suitable assumptions wherever necessary.		
	з.	Figures to the right indicate full marks.		
Q.1		Answer the following.	14	
-	1	Define the term: Creep.		
	2	What do you mean by N class of Rubbers?		
	3	Draw the chemical structure of Natural Rubber.		
	4	Write the equation showing relation between Young's Mod	ulus and	
		Shear		
	5	Write the effects associated with friction.		
	6	Give the definition of Critical Angle.		
	7	List the types of Pigments.		
	8	Give the classification of Convection.		
	9 10	State the Kirchhoff's low		
	10	Write down the major applications of inhibitors		
	11	State the Fick's Law of mass transfer		
	13	What do you mean by 'Micelles'?		
	14	Draw the diagram showing Tyndall Effect.		
0.2	(a)	Differentiate Organic and Inorganic Polymers.	03	
	(b)	Define the terms: Degree of Polymerization, Homo	Polymer, 04	
		Copolymer and Heteropolymer.	•	
	(c)	Discuss in detail about the Bulk Polymerization.	07	
		OR		
	(c)	Discuss in detail about the Suspension Polymerization.	07	
Q.3	(a)	What are the differences between density and relative density	2 03	
	(b)	State the Laws of regular reflection and refraction.	04	
	(c)	Discuss in detail about Refractive Index of Polymers.	07	
03	(a)	UK What do you mean by coefficient of friction? List the factors	offecting 03	
Q.3	(a)	coefficient of friction with respect to rubber?		
	(b)	State the experimental laws of friction given by Amor	nton and 04	
	(2)	Coulomb.		
	(c)	Discuss on four elastic constants.	07	
Q.4	(a)	Write down the applications of rubber in vibration isolation for	und in 03	
		transportation.		
	(b)	What do you mean by convective mode of heat transfer? Expl	ain the 04	
		convective heat transfer coefficient.		
	(c)	Discuss the salient features of cationic polymerization.	07	

OR

Q.4	(a)	Write down the effect of fillers on transmissibility.	03
•	(b)	Describe different modes of heat transfer.	04
	(c)	Discuss the salient features of anionic polymerization.	07
Q.5	(a)	Define the term 'Crystalloids' and 'Colloids' with its examples.	03
-	(b)	Explain about the types of solutions.	04
	(c)	Give the comparison of three types of colloids.	07
		OR	
Q.5	(a)	Write in brief about Emulsions.	03
	(b)	Describe the mechanical dispersion method for preparation of colloidal solution.	04
	(c)	Give the comparison of micelles versus colloidal solution.	07
