Seat No.:		Enrolment No.		
		GUJARAT TECHNOLOGICAL UNIVERSITY IE – SEMESTER II (NEW) – • EXAMINATION – SUMMER 2016		
Subject Code: 2724008		de: 2724008 Date: 31/0	Date: 31/05/2016	
Subjec	t Na	me: Physics of Rubber Elasticity		
		0 am to 01:00 pm Total M	Total Marks: 70	
Instruct		Account all according		
		tempt all questions. ake suitable assumptions wherever necessary.		
		gures to the right indicate full marks.		
Q. 1	(a)	Discuss the general conditions for rubber ólike elasticity.	(07)	
	(b)	Write in detail about crystallization in stretched state.	(07)	
Q. 2	(a)	Explain the particular stress-strain relations in simple extension.	(07)	
Q. 2	(b)	Short note on: õDiazo Compounds as cross ólinking agentsö. OR	(07)	
	(b)	Explain in detail about effect of entanglements on cross-linking.	(07)	
Q. 3	(a)	Discuss about the Thermal effects of extension.	(07)	
	(b)	Short note on: õEntropy of a single chainö. OR	(07)	
Q. 3	(a)	Develop the relation between force, length, temperature & thermodynamic quantities, internal energy & entropy for examination of Thermoelastic phenomena.	(07)	
	(b)	Short note on: õStatistical form of long-chain moleculeö.	(07)	
Q. 4		Discuss in detail about elastic properties of a Swollen rubber. OR	(14)	
Q. 4		Explain in detail about the principal stresses in the state of pure homogeneous strain.	(14)	
Q. 5	(a)	Justify the relation between Swelling & Modulus.	(07)	
	(b)	Discuss about the Swelling of Cross-linked Polymers. OR	(07)	
O. 5		Explain in detail about the dependence of Swelling on Strain.	(14)	
