Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

ME Semester –III Examination Dec. - 2011

Subject code: 731603 **Date: 08/12/2011**

Subject Name: Polymer Structure & Property Prediction

Time: 10.30 am – 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)	Explain in detail about General features of Chemical Composition & its effects on Polymer Properties.	(08)
Q.1(B)	"Oxygen is the most common element in Organic Chemistry & Polymer Structure." Justify the statement.	(06)
Q.2(A)	Explain the effect of Structure regularity, molecular stiffness & intermolecular attraction on Polymer properties with diagram.	(07)
Q.2(B)	What do you understand by Molecular Orientation in a Polymeric material? Discuss in detail.	(07)
	OR	
Q.2(B)	List the Monomeric additives which are purposely introduced during compounding to modify composition & final properties. Explain any three in detail.	(07)
Q.3(A)	How the Structure of a Polymer affects its mechanical properties? Describe in detail.	(07)
Q.3(B)	Explain the relation between the structure of a polymer & its electrical properties.	(07)
	OR	
Q.3	Discuss in detail about the structure of a Polymer related to its Chemical Properties.	(14)
Q.4(A)	List the different techniques used for conversion of Low molecular weight to High molecular weight polymer during processing. Explain any one in detail.	(07)
Q.4(B)	Discuss in detail about different types of Structural features of the main chain of a polymer molecule affect its flexibility.	(07)
	OR	
Q.4(A)	Discuss the relationship between molecular weight of Polymer & thermodynamic Properties & thermal stability.	(07)
Q.4(B)	Describe in brief about the effects of molecular flexibility upon the Electrical Properties.	(07)
Q.5(A)	List the different distinct types of structural factors favoring maximum potential Crystallinity at equilibrium. Discuss any one in detail.	(07)

Q.5(B)	Short note on ‘London Dispersion forces.	(07)

OR

Q.5(A)	Discuss the different Stretching process for Polymer Orientation.	(07)
Q.5(B)	How the Processibility, Mechanical Properties & Thermal Properties affected by Intermolecular Bonding? Discuss in detail.	(07)

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