Seat No.:	Enrolment No.

## **GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-VII • EXAMINATION - WINTER • 2014** 

Su	bject	Code: 173603 Date: 29-11-2014	
Ti	•	Name: Evaluation, Testing of Polymers and Rubbers 0:30 am - 01:00 pm Total Marks: 70	
	1.	Attempt all questions.  Make suitable assumptions wherever necessary.	
Q.1	(a) (b)	How can Molecular weight be determined using cryoscopy & ebullioscopy? Explain the methods of evaluating Molecular weight using Vapour Pressure and Membrane Osmometery.	07 07
Q.2	(a)	Write a short note on different types of Molecular weights and show derivation of any two.	07
	<b>(b)</b>	Explain the working of DSC with diagram, graph and its application in field of polymers and rubbers.	07
	<b>(b)</b>	OR  How are various physical and chemical properties of a polymer related to its glass transition temperature?	07
Q.3	(a)	Write a short note on hear distortion temperature and effect of conditioning of sample on various thermal properties.	07
	<b>(b)</b>	Explain melt flow index and its effect on polymer processing.  OR	07
Q.3	(a) (b)	Explain Dynamic Mechanical Analysis.  Explain the working of FTIR and its application and draw a rough graph to explain the peaks.	07 07
Q.4	(a) (b)	Draw and explain the working of XRD.  Explain rheology & viscosity.	07 07
Q.4	(a) (b)	OR  How can molecular weight be determined using viscometer?  Write a short note on UTM and explain tensile and flexural strength.	07 07
Q.5	(a)	How can Breakdown voltage and Arc resistance calculated for a polymer sample.	07
	<b>(b)</b>	Explain in short a) Stress b) Abrasion Resistance c) Pencil Hardness  OR	07
Q.5	(a) (b)	Explain in short a) Tear Test b) Fatigue and Wear Resistance c) Creep. Explain with diagram TGA and its application.	07 07

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