

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

### BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2020

**Subject Code:2173603**
**Date:19/01/2021**
**Subject Name:Evaluation & Testing of Polymers & Rubber**
**Time:10:30 AM TO 12:30 PM**
**Total Marks: 56**
**Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

			MARKS
Q.1	(a)	Explain Glass Transition temperature?	03
	(b)	Explain in brief Fourier transform infrared spectrometry.	04
	(c)	Write in detail about Gas chromatography?	07
Q.2	(a)	Explain Surface Volume resistivity?	03
	(b)	Write in brief about Vicat Softening point.	04
	(c)	Explain U- tube viscometer and Capillary viscometer in detail.	07
Q.3	(a)	Explain in brief viscoelasticity.	03
	(b)	What is heat distortion temperature? Explain in detail.	04
	(c)	Explain Environmental stress cracking resistance.	07
Q.4	(a)	Explain hardness testing of rubber and what is its unit?	03
	(b)	Write about Dielectric strength and Arc Resistance.	04
	(c)	Write about Scanning calorimeter with its applications.	07
Q.5	(a)	Write about the usage of UV-spectrophotometer in chemical industry?	03
	(b)	Explain working principal of X-ray diffraction spectrometry.	04
	(c)	What is Tensile strength? Explain in detail.	07
Q.6	(a)	Explain the method to determine Glass transition temperature (T <sub>g</sub> ) by Differential Scanning Calorimeter (DSC).	03
	(b)	Explain notched impact strength testing of plastic material.	04
	(c)	Explain Nuclear magnetic resonance spectrometry in detail.	07
Q.7	(a)	Draw a diagram of Ubbelohde viscometer.	03
	(b)	Explain working principal of mass spectrometry.	04
	(c)	Explain principle of UV – spectrophotometer with the help of diagram.	07
Q.8	(a)	Explain fire rating and Vo, V1 and V2 fire ratings.	03
	(b)	Explain flexural properties and write its significance.	04
	(c)	Explain natural and accelerated weathering. Also describe working of Ozone chamber.	07