

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2018

Subject Code: 2173607

Date: 19/11/2018

Subject Name: Product Design Concept: Structures & Additives

Time: 10:30 AM TO 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.

		MARK S
Q.1	(a) Draw the structure of following (a) PMMA (b) ABS (c) PTT	03
	(b) Define: (a) PDI (b) Refractive Index (c) Degree of crystallinity	04
	(c) Explain in detail about any one method of number average molecular weight determination.	07
Q.2	(a) Explain Ostwald viscometer with neat sketch.	03
	(b) Write short note on Cryoscopy.	04
	(c) Explain Polymer degradation.	07
	OR	
	(c) What are different processing parameters for polymers and rubbers? Describe the effect of temperature on the structure of polymer.	07
Q.3	(a) Write a note on Spherulite structure.	03
	(b) What do you mean by chain flexibility? Explain with example.	04
	(c) Explain factors affecting glass transition temperature	07
	OR	
Q.3	(a) Give three examples of Antioxidants.	03
	(b) Explain plasticizers along with its types and examples.	04
	(c) Write a short note on role of Additives in the field of polymer and rubber technology.	07
Q.4	(a) Mention different Phases of additives with brief explanation.	03
	(b) List out different types of additives and briefly explain about reinforcing agents.	04
	(c) Write a detail note on Thermogravimetric Analysis (TGA)	07
	OR	
Q.4	(a) Short note: Membrane osmometry.	03
	(b) Explain the effect of molecular weight on the properties of Polyolefins.	04
	(c) Describes the various method of flexible film testing for food and explain any one of them.	07
Q.5	(a) Explain about permeability testing method.	03
	(b) What do you mean by XRD?	04
	(c) Enlist different chemical methods for Identification of polymer and give the details of tests perform for LDPE.	07

OR

- Q.5 (a) What do you mean by microscopy? Give the name of tests which uses electron as a source. **03**
- (b) Write down advantages and disadvantages of SEM and CEM. **04**
- (c) Explain in brief about SEM. **07**

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