

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– VII (New) EXAMINATION – WINTER 2019

Subject Code: 2172311

Date: 28/11/2019

Subject Name: Plastic Structure Property Relationship

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.

		MARKS
Q.1	(a) Differentiate between thermoplastic & thermoset behavior of plastics.	03
	(b) Draw the structures of i)PS ii)PMMA iii)PVOH iv)Teflon	04
	(c) Discuss about the structure and properties of HDPE & LDPE.	07
Q.2	(a) Draw the isotactic, syndiotactic and atactic structures of PP.	03
	(b) Explain about Homo chain & Hetero chain plastic giving examples.	04
	(c) Discuss about the effect of carbon on the properties of polymers.	07
OR		
	(c) Discuss about the effect of plasticizers on the properties of polymers.	07
Q.3	(a) Explain with examples about Homo polymers & Copolymers.	03
	(b) Compare the properties of crystalline & amorphous polymers.	04
	(c) Discuss about the effect of oxygen on properties of polymers.	07
OR		
Q.3	(a) What are additives? List various additives used for plastics.	03
	(b) Explain how structure of a polymer affects its mechanical properties.	04
	(c) Draw the structure and describe the properties & applications of Nylon 66.	07
Q.4	(a) List the applications of PP and HDPE.	03
	(b) PE has a Tg of -20 deg c but it appears to be solid at room temperature. Why?	04
	(c) How does presence of halogens affect the properties of polymers?	07
OR		
Q.4	(a) Describe the properties of Teflon.	03
	(b) List the properties & applications of PMMA.	04
	(c) Discuss about structure & properties of Bisphenol A polycarbonates. What are its important applications?	07
Q.5	(a) Compare the structure of PVC to PE	03
	(b) Discuss briefly about effect of molecular weight on properties of polymers.	04
	(c) Explain the factors affecting Tg of a polymer.	07
OR		
Q.5	(a) Why PVC has self extinguishing properties? Explain.	03
	(b) Explain about blowing agents with examples.	04
	(c) Explain the factors affecting crystallinity of a polymer.	07
