

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2020****Subject Code:2172309****Date:25/01/2021****Subject Name:Plastic Structure property relationship****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) Give the structures of 1) PVOH 2) ABS 3) Nylon 66	03
(b) List the points of difference between Thermoplastics and Thermosets.	04
(c) Give comparison between structure and properties of HDPE with LDPE.	07
Q.2 (a) List the applications of PMMA.	03
(b) List the points of difference between Homochain and Heterochain polymers.	04
(c) Explain the factors affecting Tg of a polymer.	07
Q.3 (a) What are additives? List the additives used in Plastics.	03
(b) Explain why Nylons are suitable for the manufacture of gears.	04
(c) Compare the properties of crystalline and amorphous polymers.	07
Q.4 (a) Compare the structure of PVC to PE.	03
(b) Explain briefly the mechanical properties such as tensile strength and impact strength of a polymer.	04
(c) Explain the effect of Carbon on properties of a polymer.	07
Q.5 (a) Why is PE solid at room temperature even though it has a Tg of -120°C	03
(b) How does the presence of silicon affect the property of a polymer?	04
(c) Explain the factors affecting crystallinity of a polymer.	07
Q.6 (a) Explain Homopolymers and Copolymers with examples.	03
(b) What are plasticizers? How do they affect the Tg of polymer?	04
(c) Explain the effect of Hydrogen on the properties of a polymer.	07
Q.7 (a) What are flame retardants and how do they function?	03
(b) Explain briefly what are Reinforcement and Fillers.	04
(c) How does the presence of halogens affect the properties of a polymer?	07
Q.8 (a) Explain briefly what are blowing agents.	03
(b) List the properties and applications of PTFE.	04
(c) Explain the structure, properties and applications of Bis-phenol A Polycarbonates.	07
