

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII • EXAMINATION – WINTER • 2014****Subject Code: 173607****Date: 04-12-2014****Subject Name: Product Design Concepts: Structures and Additives****Time: 10:30 am - 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.

- Q.1 (a)** Write in short about the crystallinity of polymers and the factors affecting the crystallinity of polymers. **07**
- (b)** What are the different polymer technologies being used for commercial production. **07**
- Q.2 (a)** Write in detail about the glass transition temperature as well as how it affects the structure of polymers. **07**
- (b)** Write a detailed note on additives in Polymer Processing. **07**
- OR**
- (b)** Explain in detail the about chemical and physical structure. **07**
- Q.3 (a)** What is vulcanization, explain in detail about Sulphur and Peroxide vulcanization. **07**
- (b)** Describe in detail thermal behavior of the polymers and how they affect the structure. **07**
- OR**
- Q.3 (a)** Write in detail note on Injection Moldings with proper diagram and proper labeling. **07**
- (b)** Write in short about the Chain flexibility of the polymers. **07**
- Q.4 (a)** Describe in detail about spherulites with proper diagram and the structure of polymers. **07**
- (b)** Write in detail note on Blow Moldings with proper diagram and with proper labeling. **07**
- OR**
- Q.4 (a)** Write in detail note on Transfer Moldings with proper diagram and with proper labeling. **07**
- (b)** Explain in detail the process of degradation and also describe the parts due to which degradation occurs. **07**
- Q.5 (a)** Describe in detail the importance of additives in the product design of the polymers. **07**
- (b)** Explain in short the extrusion moldings with proper diagram and with proper labeling. **07**
- OR**
- Q.5 (a)** Write in detail about casting and also explain in detail the process of thermoforming of the polymers. **07**
- (b)** Describe in detail the calendaring and its types with proper diagram and proper labeling. **07**
