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## 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. Write in short about the crystallinity of polymers and the factors affecting the 07 **Q.1** (a) crystallinity of polymers. What are the different polymer technologies being used for commercial 07 **(b)** production. **Q.2** Write in detail about the glass transisition temperature as well as how it affects **07** (a) the structure of polymers. Write a detailed note on additives in Polymer Processing. 07 **(b)** Explain in detail the about chemical and physical structure. 07 **(b)** What is vulcanization, explain in detail about Sulphur and Peroxide **Q.3** (a) 07 vulcanization. Describe in detail thermal behavior of the polymers and how they affect the 07 **(b)** structure. Write in detail note on Injection Moldings with proper diagram and proper **Q.3** (a) 07 labeling. Write in short about the Chain flexibility of the polymers. 07 **(b)** 0.4 Describe in detail about spherulites with proper diagram and the structure of 07 (a) polymers. Write in detail note on Blow Moldings with proper diagram and with proper 07 **(b)** labeling. OR **Q.4** Write in detail note on Transfer Moldings with proper diagram and with proper **07** (a) Explain in detail the process of degradation and also describe the parts due to 07 **(b)** which degradation occurs. **Q.5** Describe in detail the importance of additives in the product design of the **07** (a) polymers. Explain in short the extrusion moldings with proper diagram and with proper **07 (b)** labeling. OR Q.5 (a) Write in detail about casting and also explain in detail the process of **07** thermoforming of the polymers. Describe in detail the calendaring and its types with proper diagram and proper 07 **(b)** labeling.

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