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GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-VIII • EXAMINATION – SUMMER 2013

Subject Code: 182302 Date: 13/05/2013 **Subject Name: Plastics Alloys and Blends** 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. **Q.1** (a) Define following 1) IPN 2) Liquid crystal polymer 3) Compatilizers 4) HIPS 07 5) Phase diagrams 6) Composites 7) Engineering Plastics. (b) Differentiate between Alloys and blends, and also compare Banbury mixer 07 and two roll mill used in polymer blending (a) Explain the reasons for making a polymer blends and How blend 07 **Q.2** components are selected? **(b)** Explain the Huggins-Flory theory for polymer blends 07 **(b)** Explain the significance of Gas lattice model in blends. 07 **Q.3** Explain the theory of mixing in polymer blends with the flow behavior in 07 blending equipments. **(b)** Describe the working of hot and cold mixers with suitable examples. 07 **Q.3** How thermoplastics elastromers are prepared? Explain its special properties 07 and applications. 07 **(b)** How reactive blending is differ from normal blends, describe in details? **Q.4** (a) Discuss in detail the properties of PVC/NBR blends and its application. **07 (b)** Explain the working of FTIR in blend characterisation technique. **07 Q.4** (a) How Differential Scanning Calorimetry (DSC) is used in characterization of 07 polymers? **Q.4 (b)** Explain the working of twin screw compounders with suitable sketches. 07 How scanning electron microscope (SEM) is working? 0.5 **07** Describe the properties and application of PPO/HIPS blends. 07 Q.5 Explain the polymer miscibility with phase equilibrium calculations. 07 Describe in detail the importance of polymer blends in any one commercial product manufacturing.
