

GUJARAT TECHNOLOGICAL UNIVERSITY
ME - SEMESTER–I(New course)• EXAMINATION – WINTER- 2015

Subject Code: 2712407**Date: 04/01/2016****Subject Name: Polymer Blends and Alloys****Time:2:30 pm to 5:00 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 and explain the following terms: Co-polymer, graft copolymer , Interpenetrating Polymer Networks. **07**
- (b) What is Polymer blend? What are the reasons for making polymer blend? How to select blend components? Discuss. **07**
- Q.2** (a) Describe in detail the compatibilization mechanism of blend components by reactive compatibilization. **07**
- (b) Explain LCST and UCST, why most of the polymer blends exhibit LCST rather than UCST? **07**
- OR**
- (b) Explain in detail about the selection procedure of blend components. **07**
- Q.3** (a) Differentiate between Single screw and twin screw extruder. **07**
- (b) Explain in details the flow behaviour of the immiscible and miscible blends. **07**
- OR**
- Q.3** (a) Explain any three commercial polymer blends with its application and reason for making following blends. **07**
- (b) Write a short note on chemical blending methods. **07**
- Q.4** (a) Explain in detail about glass transition temperature (T_g). How it is useful to characterize polymer blends **07**
- (b) Explain Transmission Electron Microscopy (TEM) for characterization of polymer blends with neat diagram; also give difference between SEM and TEM. **07**
- OR**
- Q.4** (a) Which techniques are used to study the phase morphology of the blend Component? Explain any one of them. **07**
- (b) Write notes on: (i) Two roll mill (ii) Banbury mixer. **07**
- Q.5** (a) Write short notes on (a) Light scattering and (b) X-ray scattering – spectroscopy **07**
- (b) Write a short note on rheology of the polymer blends. **07**
- OR**
- Q.5** (a) Explain the principle and working of Differential Scanning Calorimetry (DSC). How is it useful to Characterize polymer blends? **07**
- (b) Describe the advantages and disadvantages of transmission electron Microscopy over scanning electron microscopy. **07**
