

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VIII • EXAMINATION – WINTER • 2014

Subject Code: 182302**Date: 29-11-2014****Subject Name: Plastics Alloys and Blends****Time: 02:30 pm - 05:00 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 the following terms, **07**
- | | |
|-------------------------------|------------------------------|
| i) Polymer blend | ii) Homologous polymer blend |
| iii) Compatible polymer blend | iv) Miscible polymer blend |
| v) Polymer Alloy | vi) Semi & Full IPN |
- (b)** How to design a polymer blend? Give the reasons for blending. **07**
- Q.2 (a)** Write a short note on rheology of alloys and blends. **07**
- (b)** Explain in detail about thermodynamic approach for miscible blend. **07**
- OR**
- (b)** Explain in detail about the chemical blending techniques. **07**
- Q.3 (a)** Write a short note on polymer blends use in cable industries. **07**
- (b)** List out the various types of blending methods and explain in detail about the different types of continuous mixers. **07**
- OR**
- Q.3 (a)** Explain the Huggins-Flory theory in detail. **07**
- (b)** Write a short note on different types of polycarbonate (PC) blends. **07**
- Q.4 (a)** Explain in detail about the selection procedure of blend components. **07**
- (b)** List out the various equipments used for making polymer blends and explain the design and advantages of twin screw compounder. **07**
- OR**
- Q.4 (a)** Which techniques are useful to study the morphology of polymer blends? Explain in detail about any one of them. **07**
- (b)** Explain in detail about the PVC/ABS blend. **07**
- Q.5 (a)** How the polymer blends are useful in defence applications? Explain with suitable examples. **07**
- (b)** Discuss compatibilization of polymer blend by reactive processing. **07**
- OR**
- Q.5 (a)** How the differential scanning calorimetry (DSC) technique is useful to characterize the polymer blends? **07**
- (b)** Discuss in detail about liquid crystalline polymer (LCP) blends. **07**
