

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER – V (NEW) EXAMINATION – WINTER 2015

Subject Code: 2153602**Date: 10/12/2015****Subject Name: Polymer and Rubber Materials-I****Time: 10:30am to 1:00pm****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) Explain in detail production of HDPE plastic material. Write its important properties **07**
- (b) Select suitable polymers and give synthesis of polymer. Justify your selection of polymer: crash helmet, computer housing **07**
- Q.2** (a) Discuss the factors which affect the melting point of nylons and explain with examples **07**
- (b) Write short note on the synthesis of (i) EPDM (ii) Polyvinylidene chloride **07**
- OR**
- (b) Write short note on the synthesis of (i) LLDPE (ii) PBT **07**
- Q.3** (a) Explain the production of Polystyrene plastic in detail with its structure and applications **07**
- (b) Write a structure and applications of (i) PAES (ii) Kevlar **07**
- OR**
- Q.3** (a) Arrange the following in order of **07**
Increasing T_m : Nylon 66, PC, PET, HDPE, PEEK
Increasing T_g : PP, PS, Nylon 66, PC, PET, PVC, PEEK
- (b) Write short notes on (i) Polyacrylonitrile (ii) HIPS **07**
- Q.4** (a) Explain in detail with reaction scheme mechanism, the production of PET polymer. Give its applications **07**
- (b) Write a detailed note on the synthesis of PVC including main monomers used and its important properties **07**
- OR**
- Q.4** (a) Explain in detail PEEK production including monomers used and reaction mechanism involved **07**
- (b) Write short notes on (i) LDPE (ii) PPCP **07**
- Q.5** (a) Write a detailed note on the synthesis of Polycarbonate including main monomers used and its applications. **07**
- (b) Write in detail about different arrangements in structures of Liquid Crystal Polymers. **07**
- OR**
- Q.5** (a) Explain in detail the production for Polyisobutylene with its structure and its applications. **07**
- (b) Explain in detail synthesis of Nomex including reaction and its important properties. **07**
