Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – SUMMER • 2014

Subject Code: 162605 Date: 26-05-2014

Subject Name: Thermoplastics Elastomers and Polymer Blends

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.**

Q. 1 Answer the following. **(14)**

(i) List the name of Thermoplastic Elastomers which are produced by grafting reaction.

(ii) Write the name of chemical which increase the melt flow and adhesion properties of TPE.

(iii) What are the full name of PTMEG and 4-GT.

(iv) How Thermoplastic Polyurethane is formed?

(v) Draw the chemical structure of Dimethyl Silokane and Bisphenol A Carbonate type block polymers.

(vi) Which are the future requirements of TPE?

(vii) Write the difference between TPV and conventional rubber (any two).

Q. 2 (a) "Conventional rubbers are replaced by TPE in automotive applications" justify this statement in detail. **(07)**

Q. 2 (b) Discuss in detail about chemistry, compounding, properties and application of SEBS block polymers. **(07)**

OR

(b) Define the term "Plastomers". Explain the structure and composition of plastomers with their processing methods. **(07)**

Q. 3 (a) Explain the mechanical and electrical properties of Polyolefin TPE. **(07)**

(b) List the weather and environmental properties of Polyester TPE. Explain it in detail. **(07)**

OR

Q. 3 (a) Short note on "VISTAFLEX Thermoelastics" **(07)**

(b) Explain in detail about unusual industrial application of polyester TPE. **(07)**

Q. 4 (a) Write the advantages and disadvantages of TPE vs. conventional rubbers. **(07)**

(b) Discuss in detail about characteristics of TPU Elastomers. **(07)**

OR

Q. 4 (a) Answer the following.

(i) List the factors affecting TPE properties and grades. **(04)**

(ii) Mention the commercially available types of block polymers with suitable example. **(03)**

(b) Explain about the problems occurred during extrusion process of TPU. State their causes and remedies. **(07)**

Q. 5 (a) List the polysiloxane based TPE. Explain any one in detail. **(07)**

(b) Discuss the blending methods used to prepare a speciallity TPE compound. **(07)**

OR

Q. 5 (a) Explain in detail about processing, properties and application of EVA. **(07)**

(b) Discuss the importance of compounding ingredients in SBS and SIS type TPE. Explain its effects on properties of TPE. **(07)**

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