

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014

Subject code: 1724006

Date: 23-06-2014

Subject Name: Speciality Elastomers and its Technology

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 mark.**

Q. 1 Answer the following:

- (a) Discuss about the Cyclisation of Natural Rubber with reaction mechanism and write the advantages of this modification in NR. (07)
- (b) Explain the chemical modification of Natural Rubber by Hydrohalogenation Reaction and its advantages in detail. (07)

Q. 2 (a) δ Hydrogenation of Synthetic Elastomers is an excellent example of a chemical modification. Justify the statement with suitable example. (07)

Q. 2 (b) Draw and explain the basic structure of Acrylic Elastomers and write about its Processing characteristics. (07)

OR

- (b) Short note on Fundamental properties and applications of Acrylic Elastomers. (07)

Q. 3 (a) List the different type of Flow Orientation in short fiber Rubber Composite. And explain it in detail with schematic representation. (07)

- (b) How the Characterization of Degree of Dispersion can be carried out? Explain it and discuss about important Determinants of the Degree of Dispersion with Graphical representation. (07)

OR

Q. 3 (a) Describe the methods for the Analysis of Fiber Orientation in short fiber Rubber Composite. (07)

- (b) Draw and explain the schematic diagram for the formation of short fiber rubber composite from treated fiber and list the factors affecting Dispersion. (07)

Q. 4 What do you mean by Carboxylated Elastomers? List the methods for Preparation of Carboxylated Elastomers and explain any one in detail. (14)

OR

Q. 4 List the possible blends of Carboxylated Elastomers with other Polymers and discuss the advantages of any four blends. (14)

Q. 5 (a) Write the Abbreviation, structure, grades, properties and applications of Tetrafluoroethylene-Propylene Elastomers. (07)

- (b) Discuss about the basic processes for Moisture curing of Cross linked Polyethylene compounds with the help of flow diagram. (07)

OR

Q. 5 (a) List the vulcanization system for AFLAS copolymer and explain any one by giving reaction mechanism. (07)

- (b) Give the basic structure of XLPE and write about Peroxide Crosslinking with reaction for manufacturing of XLPE. (07)
