

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III • EXAMINATION – WINTER • 2014****Subject Code: 132602****Date: 01-01-2015****Subject Name: Rubber 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 marks.

Q. 1 Answer the following. (14)

- (i) List the name of principal regions of mature trunk of Hevea Brasiliensis tree.
- (ii) Define the term: polymer degradation.
- (iii) Write about mechanism of Orientation.
- (iv) What do you mean by Polymer Crystallinity?
- (v) Explain the term: "Porosity"
- (vi) Give the reaction mechanism for synthesis of Acrylonitrile monomer.
- (vii) Write the function and importance of Coal as a Natural polymer.

Q. 2 (a) Write a detailed note on Axes of Orientation. (07)**Q. 2** (b) Short note on Bud grafting process. (07)**OR**

(b) Explain the propagation of Hevea Brasiliensis tree by Seed germination method. (07)

Q. 3 (a) Give a detailed Classification on Protein as a Natural polymer. (07)

(b) Discuss the importance of Fluorine element in polymer chemistry. (07)

OR**Q. 3** (a) Write the characteristics and importance of following Natural polymers: (i) Humus (ii) Shellac (iii) Lignin (07)

(b) Explain the function of various monomeric ingredients used during compounding of polymer. (07)

Q. 4 (a) Give the reaction mechanism for synthesis of Styrene monomer and explain it. (07)

(b) Write about degradation of Polymers by High Energy Radiations. (07)

OR**Q. 4** (a) Explain the Dehydrogenation method for synthesis of Butadiene monomer with reaction mechanism. (07)

(b) Discuss about Mechanical degradation of Polymers in detail. (07)

Q. 5 (a) List the factors affecting Polymer crystallinity and explain about any two in detail. (07)

(b) Write the important reactions for manufacturing of Phenolic resin and explain the process in detail. (07)

OR**Q. 5** (a) Explain the concept of Glass transition temperature (T_g) with schematic diagram and write its practical significance. (07)

(b) Write the properties and applications of Amino resins. (07)