Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III • EXAMINATION – SUMMER 2013

Subject Code: 132602 **Date: 04-06-2013**

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). Define the term : "Tapping "

(ii). Write the importance of Carbonyl bond (C=O) in polymer structure.

(iii). Explain the mechanism of orientation.

(iv). Write the reaction mechanism for synthesis of styrene monomer.

(v). Write the effect of copolymerization on crystallinity of polymers.

(vi). Define the term : " Porosity ".

(vii). Write the function of Antioxidants.

Q. 2 **(a)** Draw the schematic diagram of section showing trunk of Hevea tree and discuss about the regions of trunk. **(07)**

(b) List the name of monomeric additives introduced during compounding. Explain about any two in detail. **(07)**

OR

(b) "Carbon is the most important element in Polymer chemistry. " Justify the statement. **(07)**

Q. 3 **(a)** Short note on Axes of Orientation. **(07)**

(b) Write the name of processes used for manufacturing of Butadiene monomer. Explain any one process with reaction mechanism. **(07)**

OR

Q. 3 **(a)** List the methods of Orientation. Explain any two methods in detail. **(07)**

(b) Short note on Ammoxidation process. **(07)**

Q. 4 **(a)** Discuss the factors influencing the Glass Transition Temperature (Tg). **(07)**

(b) Explain in detail about Mechanical degradation in polymers. **(07)**

OR

Q. 4 **(a)** Write about factors affecting Crystallinity of Polymers. **(07)**

(b) List the basic types of degradation and give comparison between them. **(07)**

Q. 5 **(a)** What do you mean by Sorption and Adsorption? Discuss in detail. **(07)**

(b) Explain the production of Phenolic resins. **(07)**

OR

Q. 5 **(a)** Write the methods of forming Porous structure in polymers. Explain about any two methods. **(07)**

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