

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- IIIrd SEMESTER-EXAMINATION – MAY- 2012

Subject code: 132602

Date: 15/05/2012

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). Write the chemical reaction for manufacturing of Styrene monomer from Benzene.
- (ii). What do you mean by Cambium layer? Write its importance for Heavea tree.
- (iii). Write the difference between homo polymer and co-polymer.
- (iv). Explain the terms: i) adsorption ii) adsorbent iii) adsorptive
- (v). Give the reaction for Lactonitrile Process.
- (vi). Give the difference between two major groups of proteins with example.
- (vii). Give the effect of multiple conjugated unsaturations in polymer structure.

Q. 2 (a) Draw the schematic diagram showing the principle regions of mature trunk of Hevea brasiliensis tree and explain it in detail. **07**

Q. 2 (b) Hydrogen element is important in polymer chemistry”. Explain the statement in detail. **07**

OR

(b) Explain the importance of Carbon element in polymer chemistry. **07**

Q. 3 (a) Explain about “Ammoxidation process” for the production of Acrylonitrile monomer **07**

(b) i) Describe the term: thermal degradation. **07**
ii) Write the structural requirements for thermal stability of polymer.

OR

Q. 3 (a) Explain the structure and importance of following natural polymer. i)lignin **07**
ii)natural rubber

(b) Short note on oxidative degradation of polymers. **07**

Q. 4 (a) Short note on Axes of orientation. **07**

(b) Short note on glass transition temperature (Tg). **07**

OR

Q. 4 (a) List the name of reagents used for manufacturing of Butadiene monomer & Explain any one process in detail. **07**

(b) Explain about polymer crystallinity in short. Explain the influence of following factors on polymer crystallinity. **07**

i) Degree of polymerization (DP)

ii) Cooling rate

iii) Chain geometry

Q. 5 (a) Explain the production of phenolic resins. **07**

(b) Write about Impurities in final polymer composition. **07**

OR

Q. 5 (a) Write about the properties and applications of Amino resins. **07**

(b) Explain the mechanism of sorption of Inert Sorbets’ on polymer. **07**
