

**GUJARAT TECHNOLOGICAL UNIVERSITY****B.E. Sem-III Regular / Remedial Examination December 2010****Subject code: 132602****Subject Name: Rubber Technology****Date: 14 /12 /2010****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** **14**
- (a) Give the schematic diagram of principal regions of mature trunk of Hevea tree.
  - (b) What do you mean by 'mercerization'? Give its advantages.
  - (c) Justify the relationship between chemical composition and polymer properties like 1) Thermal stability 2) Solubility 3) Acoustic properties 4) Flame resistance.
  - (d) Explain the mechanism of orientation in brief.
  - (e) "Cooling rate influences the amount of Crystallinity." Justify the Statement.
  - (f) Write the Chemistry for preparation of Epoxy resins in brief.
  - (g) List the parameters by which the porosity of a sorbent is estimated.
- Q.2** **07**
- (a) Explain the Repee process for production of Butadiene monomer and list the other available methods for production of Butadiene monomer.
  - (b) "Mechanical methods make the polymer molecules degrade." Explain the statement. **07**
- OR**
- (b) Write a Short note on Ablation. **07**
- Q.3** **07**
- (a) Give the Schematic diagram of typical bud-grafting process and explain in detail.
  - (b) Discuss the effect of Chlorine, Bromine and Iodine halogen elements in Polymer Chemistry and in Organic Chemistry. **07**
- OR**
- Q.3** **07**
- (a) Write a Short Note on Seed propagation for Hevea tree.
  - (b) Write about the Impurities in final Polymer Composition. **07**
- Q.4** **07**
- (a) Explain about the effect of Crystallinity on the properties of polymer.
  - (b) Explain the production of Phenolic resins in details. **07**
- OR**
- Q.4** **07**
- (a) Short Note on Thermal Transitions in Polymers.
  - (b) Define the term : "Thermosetting Resins" suggest two methods of fabrication for 1) Amino resins, 2) Unsaturated polyester resin 3) Epoxy resin, 4) Polyurathane foam, 5) Silicon Rubber. **07**
- Q.5** **06**
- (a) Describe any three methods of obtaining porous structure of polymer.
  - (b) Explain viscose process in brief. **04**
  - (c) How orientation mechanisms affect the chemical properties of polymer? Explain in brief. **04**
- OR**
- Q.5** **06**
- (a) Explain the mechanism of Sorption of Inert Sorbets' on polymer.
  - (b) List any four natural organic polymers with its structural description and application. **04**
  - (c) Explain about Axes of orientation with its schematic diagram. **04**

\*\*\*\*\*