

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V • EXAMINATION – SUMMER 2013****Subject Code: 152605****Date: 23-05-2013****Subject Name: Rubbers: Manufacturing and Its Applications****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** Answer the following. **14**
- (i) List the different types of Belt.
 - (ii) Give the name of different parts of tyre.
 - (iii) Write the structural formula of following rubbers (i) Silicon rubber (ii) Isoprene rubber.
 - (iv) Define the term "Vulcanization".
 - (v) Give the classification of major fillers used in rubber industry.
 - (vi) Write the synthesis reaction for Acrylonitrile monomer.
 - (vii) List the types of carbon black.
- Q. 2** (a) Define the term "Hose". Write the overview of manufacturing process of Hose. **07**
- Q. 2** (b) Explain any two manufacturing process for synthesis of Butadiene monomer in detail with reaction mechanism. **07**
- OR**
- (b) Describe in detail about any two manufacturing process for synthesis of Chloroprene monomer with reaction mechanism. **07**
- Q. 3** (a) Explain the manufacturing process for production of Butyl rubber with flow diagram. **07**
- (b) Discuss the properties and applications of Ethylene Propylene Diene Methylene (EPDM) Rubber. **07**
- OR**
- Q. 3** (a) Describe the manufacturing process for production of Styrene Butadiene Rubber with flow diagram. **07**
- (b) Explain the properties and applications of Acrylonitrile Butadiene Rubber. **07**
- Q. 4** (a) Describe about (i) Superior processing rubber (SP rubber) (ii) Thermoplastic natural rubber (TPNR) (iii) Skim rubber. **07**
- (b) List the applications of rubber in general field. **07**
- OR**
- Q. 4** (a) Write the name of major vulcanization system and explain any two in detail. **07**
- (b) List the applications of rubber in automobile field. **07**
- Q. 5** (a) Explain about following non-black fillers (i) China Clay (ii) Whiting. **07**
- (b) List important grades of carbon black and explain about their properties and application. **07**
- OR**
- Q. 5** (a) Short note on "Process oil". **07**
- (b) Explain the basic concepts of Caoutchouc. **07**
