

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER V • EXAMINATION – WINTER - 2012****Subject code: 152605****Date: 23-01-2013****Subject Name: Rubbers: Manufacturing & its Applications****Time: 02:30 pm to 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** (a) Answer the following. **08**
- 1.** Give the reaction mechanism for Acrylonitrile monomer.
 - 2.** List the types of Polymerisation method.
 - 3.** Write any two properties & applications of PBR.
 - 4.** Define the term 'Polymerisation.'
- (b) Explain the Chemistry of EPDM Rubber. **06**
- Q.2** (a) Write the applications of rubber in Civil engineering & Electrical Engineering field. **07**
- (b) Discuss the general Overview for Cellular rubber Products. **07**
- OR**
- (b) Discuss the general Overview for Conveyor Belt & V Belt. **07**
- Q.3** (a) Answer the following.
- (i)** Discuss in detail about the properties of Raw Natural Rubber. **06**
 - (ii)** Explain the classification of sulphur vulcanization system. Which different types of crosslinks take place during the sulphur vulcanization? **04**
- (b) How is molecular weight determined by sedimentation velocity method? **04**
- OR**
- Q.3** (a) Answer the following.
- (i)** Give the different types of caotchuc. Explain any three. **06**
 - (ii)** Write about the following properties of Natural Rubber vulcanizate: (i) Ageing Resistance (ii) Dynamic properties. **04**
- (b) How is molecular weight determined by osmotic pressure method? **04**
- Q.4** Answer the following.
- (a)** Write the name of monomer used in manufacturing of Polybutadiene Rubber (PBR) and explain the manufacturing process of this monomer in detail. **07**
 - (b)** Explain the Free-radical mechanism steps by giving reactions. **07**
- OR**
- Q.4** (a) List the name of reagents used in production of Polystyrene monomer & explain its manufacturing process in detail. **07**
- (b) Short note on Emulsion Polymerisation. **07**
- Q.5** (a) Explain the manufacturing process of Polychloroprene rubber with flow chart. **07**
- (b) 'Silicone rubber is a versatile material.' Justify the statement. **07**
- OR**
- Q.5** (a) Explain the manufacturing process of Isoprene rubber with flow chart. **07**
- (b) Discuss the influence of ACN(Acrylonitrile) content on properties of NBR. **07**
