Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2013

Subject code: 1724006 **Date: 05-06-2013**

Subject Name: Speciality Elastomers and Its Technology

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.

(a) Write the reaction mechanism for cyclisation of Natural rubber and explain it in detail. **(07)**

(b) Explain the chemistry and preparation of hydro halogenated Natural rubber. **(07)**

Q. 2 **(a)** Answer the following.

(i) Give the schematic representation for the formation of short ï fiber rubber composite. **(03)**

(ii) Show the reaction mechanism for isomerisation of Synthetic elastomer. **(04)**

(b) Discuss about the processing characteristics of Acrylic based elastomer. **(07)**

OR

Q. 2 **(b)** List the applications of Acrylic based elastomer and discuss any four applications in detail. **(07)**

Q. 3 **(a)** Write the vulcanization system used for Tetraflouroethylene ï propylene copolymer. Explain any one with reaction mechanism. **(07)**

(b) Short note on Radiation cross linking of cross linked Polyethylene(XLPE). **(07)**

OR

Q. 3 **(a)** Write the structure of AFLAS copolymer. List the available types of AFLAS copolymer, its properties and application. **(07)**

(b) Discuss about the chemistry of XLPE and give all the applications. **(07)**

Q. 4 **(a)** List the methods of preparation of Carboxylated rubbers. Explain any one in detail. **(07)**

(b) Write the methods of scorch control for Carboxylated rubbers. Discuss any two in detail. **(07)**

------P.T.O.----

OR

Q. 4 Describe in detail about the types of blends of Carboxylated NBR with other rubbers. **(14)**

Q. 5 Explain the methods for the analysis of fiber orientation. **(14)**

OR

Q. 5 Draw the diagram showing fiber orientation and discuss the effects of flow orientation of short fiber composite. **(14)**

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