

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII • EXAMINATION – WINTER • 2014

Subject Code: 172605**Date: 29-11-2014****Subject Name: Rubber Adhesion & Adhesion Science****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) Give the difference between Storage Life & Pot Life of adhesives.
- (ii) In which solvents NBR rubber is insoluble?
- (iii) Write the importance of Plasticity Retention Index (PRI).
- (iv) List out the disadvantages of Neoprene rubber adhesives.
- (v) Write the chemical formula of PAPI.
- (vi) Define the role of Silane coupling agent in adhesives.
- (vii) Give the name of diluents for Epoxy Resin based adhesives.

Q. 2 (a) Discuss the design of Adhesive bond. **(07)**

(b) Short note on “Pressure sensitive adhesives”. **(07)**

OR

(b) Explain the function of Resins in rubber based adhesives. **(07)**

Q. 3 (a) Discuss the Non vulcanizing natural rubber adhesive by using formulation. **(07)**

(b) Describe the compounding of adhesive based on Neoprene latex. **(07)**

OR

Q. 3 (a) Write the merits and demerits of rubber based adhesive system. **(07)**

(b) How the viscosity is important for adhesives? Write about the method to control the viscosity for Neoprene based adhesives. **(07)**

Q. 4 (a) Discuss the important characteristics of Epoxy resin adhesives. **(07)**

(b) List the responsible features for the effectiveness of Isocyanate based adhesive. **(07)**

OR

Q. 4 (a) Explain the chemistry of Epoxy resin based adhesives. **(07)**

(b) Describe the preparation of polyurethane adhesive without addition of Isocyanate. **(07)**

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Q. 5 (a) Discuss the theory of adhesive action for Cyanoacrylate adhesive. **(07)**

(b) Write the properties & applications for Nitrile rubber cements **(07)**

OR

Q. 5 (a) Give the comparison of Water based Vs Solvent based Vs Hot melt adhesives. **(07)**

(b) How the different grades of Polymers & Solvents can be selected to prepare the Nitrile rubber adhesive. Explain it. **(07)**
