

Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY
Bachelor of Engineering - SEMESTER - VII EXAMINATION - SUMMER 2025

Subject Code: 3172608

Date: 27-05-2025

Subject Name: Rubber Adhesion and Adhesion Science

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.**

	Marks
Q.1 (a) Give the difference between the Adhesion and Cohesion.	03
(b) Write down the advantages and disadvantages of adhesive bonding.	04
(c) Short note on: "Pressure sensitive adhesive".	07
Q.2 (a) List the types of stresses for adhesive joint.	03
(b) What is the role of Diluents in Epoxy Resin Adhesives?	04
(c) Compare the Water based Vs Solvent based Vs Hot melts adhesives in detail.	07
OR	
(c) Describe the resins function in rubber-based adhesives.	07
Q.3 (a) Write the importance of Softeners in natural rubber adhesive.	03
(b) Write the importance of reinforcing agents in Natural rubber adhesive.	04
(c) Describe the compounding of Nitrile Rubber Adhesives in detail.	07
OR	
(a) Give any one example of two component solvent mixture for NBR adhesive.	03
(b) Short note on: "Nitrile Rubber Latex Adhesive".	04
(c) Describe in detail about the vulcanizing Natural rubber adhesive.	07
Q.4 (a) Write the benefits of SBR Latexes.	03
(b) How to increase the tack in SBR adhesive?	04
(c) What are the common fillers and additives used in cyanoacrylate adhesives, and how do they influence adhesive properties?	07
OR	
(a) List out the useful functions of the plasticizers in thermoplastic rubber-based adhesive.	03
(b) Draw the thermoplastic elastomer adhesive formulation with their ingredients importance for the pressure sensitive adhesive application.	04
(c) Explain any one SBR rubber adhesive application with its formulation.	07

- Q.5 (a)** Describe the function of Metal oxides in Neoprene rubber Adhesive. **03**
- (b)** List out the advantages of Neoprene rubber adhesives. **04**
- (c)** Discuss the mixing and processing techniques for Butyl rubber and Polyisobutylene adhesives. **07**

OR

- (a)** List the curing system for Butyl rubber adhesive. **03**
- (b)** Write the advantages of Butyl rubber adhesives. **04**
- (c)** Describe in details about application methods of Neoprene adhesives. **07**
