

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII • EXAMINATION – WINTER 2013****Subject Code: 172605****Date: 03-12-2013****Subject Name: Rubber Adhesion and 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 (a) Define the term (i)Adhesives cold setting (ii)Thixotropy(iii)Tack(iv)Mastics (04)

(b) Explain in detail the types of adhesives technique without using any volatile carriers. (05)

(c) Discuss the compounding ingredients which are use for making a rubber based adhesives with their function. (05)

Q.2 (a) Write the manufacturing process, properties, uses and application of grafted copolymer of NR with suitable example. (07)

(b) Explain the application of Nitrile rubber adhesive with their example. (07)

OR

(b) Short note on non vulcanizing natural rubber latex adhesives. (07)

Q.3 (a) Describe in details about application methods of neoprene adhesives. (06)

(b) Explain in details about classification of adhesives. (08)

OR

Q.3 (a) Compare the water based, solvent based and hot-melt adhesives system. (06)

(b) Explain the effect of compounding and processing variables on Neoprene adhesive. (08)

Q.4 (a) Write the reasons for the effectiveness of polyurethane and isocyanate based adhesives. (06)

(b) Answer the following.

(i) Draw the schematic diagram of vulcanization bonding process. (02)

(ii) Describe the rubber to metal bonding preparation. (06)

OR

Q.4 (a) Explain the importance of silane coupling agent in rubber adhesives science. (06)

(b) Write about preparation, properties and uses of cynoacrylate adhesive. (08)

Q.5 (a) List out the method/types of polyurethane and isocyanate based adhesive systems. Explain any two in detail with suitable examples and their uses. (07)

(b) Explain in detail about the factors affecting rubber to fabric bonding. (07)

OR

Q.5 (a) Describe in detail about the testing methods which are used to check rubber to metal bonding. (07)

(b) Short note on Nitrile rubber latex adhesive. (07)
