

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
M. E. - SEMESTER – I • EXAMINATION – WINTER • 2013

Subject code: **714003**

Date: 03-01-2014

Subject Name: Rubber Cultivation and Rubber Latices

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) Write the preliminary considerations for concentration of N R latex. (07)
Explain any one method for the concentration of N R latex in detail.
- (b) What do you mean by Volatile fatty acids (VFA)? Write the responsible factors for the formation of VFA in N R latex. (07)

- Q.2** (a) Answer the following.
- (i) How the water sensitivity of deposits from synthetic latices can be reduced? Explain it. (04)
- (ii) Give comparison between N R latex and synthetic lattices in terms of chemical composition. (03)
- (b) Why partial agglomeration of synthetic lattices is necessary? List the name of chemical methods for agglomeration and explain any one. (07)

OR

- (b) List the name of physical methods for partial agglomeration of synthetic latices and explain any one in detail with schematic diagram. (07)
- Q. 3** (a) List the applications of SBR latices. Draw the outline flow diagram for the production of SBR latex by emulsion polymerization and discuss it. (07)
- (b) Discuss the effect of acrylonitrile content on various properties of NBR latices with schematic representation and explain the production of NBR latices. (07)

OR

- Q. 3** (a) Discuss the chemistry, properties and grades of polychloroprene lattices in detail. (07)
- (b) Explain the chemistry, structure, properties and application of acrylic lattices. (07)
- Q.4** (a) Discuss the advantages and disadvantages of Artificial latices. List the methods for production of Artificial latices and explain any two in detail. (07)

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- (b) How artificial synthetic cis-1, 4-polyisoprene latex is differing than (07)

ammonia preserved natural latex?

OR

Q.4 List the applications of artificial lattices of reclaimed rubber. **(14)**
Discuss the manufacturing process in detail.

Q.5 (a) Discuss about the accelerators and activators for the preparation of sulfur prevulcanized N R latex. **(07)**

(b) Explain the sulfur prevulcanization process of N R latex. **(07)**

OR

Q.5 (a) “The chloroform coagulation test provides a very simple and rapid procedure for assessment of degree of prevulcanization”. Justify the statement. **(07)**

(b) List the principal ways for prevulcanization of N R latex by high energy radiation. Explain its chemistry. **(07)**
