

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2018

Subject Code: 2143602
Date: 05/12/2018
Subject Name: Rubber Chemistry & Natural Polymers
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) Write down the Classification of Natural Polymers.	03
	(b) Write short notes on following: Proteins, starch & lignin.	04
	(c) Give examples of diene in EPDM rubber? Explain its properties and major applications	07
Q.2	(a) Write a note on Elastomers.	03
	(b) Draw a flow chart for manufacturing of IIR	04
	(c) Explain ozone resistant rubber, its preparation and reactions involved.	07
	OR	
	(c) Write in detail preparation, properties and uses of Epoxy resins.	07
Q.3	(a) Define Tg & What is The Tg of Natural Rubber	03
	(b) Why modification is important for natural polymers and rubbers? Explain with example	04
	(c) Write about the raw materials and chemical reactions for Alkyd and amino resin.	07
	OR	
Q.3	(a) Write a note on nitrile rubber.	03
	(b) Write a Detailed note on polyamides.	04
	(c) Write short notes on any two a) Styrene b) Butadiene c) cellulose d) unsaturated polyester resins	07
Q.4	(a) Give the function of Blowing Agent, Plasticizers & Flame Retardant Agent	03
	(b) Suggest a Rubber for the making of lining of Tank used for hexane. State its manufacturing process and other applications also.	04
	(c) Elaborate the process of vulcanization.	07
	OR	
Q.4	(a) Write in detail preparation and uses of PU.	03
	(b) Write down various techniques of polymerization.	04
	(c) What is Chitosan? Write reactions for the preparation of chitosan from chitin and its application.	07
Q.5	(a) Explain mastication, compounding and curing.	03
	(b) Describe in short the modification process of rubbers.	04
	(c) Write chemical structures of following: Isoprene, Chloroprene, NBR, Buna-S, Natural Rubber, Neoprene, EPDM	07
	OR	
Q.5	(a) Which polymer is widely used for bio-medical applications? Explain its synthesis.	03
	(b) Explain synthesis of Saturated and unsaturated Polyester.	04
	(c) Write notes on any two: Hypalon, NR, limited olefinic functionality	07