

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: BTech
BRANCH: Chemical Engineering

SEMESTER : VII
SESSION : MO/2025

SUBJECT: CL435ELASTOMER TECHNOLOGY

TIME: 02 Hours

FULL MARKS: 25

INSTRUCTIONS:

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates
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Q.1(a)	What conditions make a polymer to behave like a rubber?	[2]	CO	BL
Q.1(b)	How is the glass transition temperature an important parameter for a rubber? Explain with justifications	[3]	CO-1 CO-3	BL-2 BL-3
Q.2(a)	What are the protective ingredients added to the natural rubber latex, (I) before coagulation and (II) after coagulation?	[2]	CO-1	BL-1
Q.2(b)	How do you prepare pale crepe (light coloured rubber) from latex?	[3]	CO-1	BL-1
Q.3(a)	Write the reaction when natural rubber reacts with ozone in the presence of water.	[2]	CO-3	BL-2
Q.3(b)	What is the generic name by which Chloroprene rubber is usually characterized?	[3]	CO-2	BL-1
Q.4(a)	What are the main drawbacks of using natural rubber without vulcanising it? What is the chemical reason behind this phenomenon?	[2]	CO-2	BL-3
Q.4(b)	Why can one go for various curing systems for CSMs (Chlorosulfonated rubber)? Name at least three curing systems which are used for CSM curing.	[3]	CO-2	BL-2
Q.5(a)	Distinguish between hot and cold SBR.	[2]	CO-2	BL-2
Q.5(b)	What outstanding property does vulcanisate of NBR exhibits to render it useful in the market? What does it depend on?	[3]	CO-2	BL-2

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