

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION MO/2024)

CLASS: B.TECH.
BRANCH: CHEMICAL ENGINEERING

SEMESTER :V
SESSION : MO/2024

SUBJECT: CL341 POLYMER 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

			CO	BL
Q.1(a)	Write down the limitations of lubricants. Give examples of lubricants used with PVC.	[2]	1	I
Q.1(b)	Compare the mechanism of action of preventive antioxidants with chain breaking antioxidants. Give example of each.	[3]	1	II
Q.2(a)	Classify crosslinking agents used with polymers. Give examples of each type.	[3]	1	IV
Q.2(b)	Explain the mechanism of action of fillers in polymers. Elaborate the terms exfoliation and intercalation of fillers with suitable diagram.	[2]	1	II
Q.3(a)	Describe the method of preparation of NOVOLAC resin starting from the raw materials and mention the reagents/conditions used for that.	[3]	2	II
Q.3(b)	Illustrate the reagents required for curing of vinyl ester and show the reaction involved during its synthesis.	[2]	2	III
Q.4(a)	Compare unsaturated polyester and epoxy resin in terms of chemical structure of repeat unit, curing agents used and limitations of the cured resin.	[2.5]	2	IV
Q.4(b)	Summarize the significant differences between compression moulding and Vacuum bag moulding techniques with suitable diagram.	[2.5]	3	II
Q.5(a)	Compare the advantages and limitations of manufacturing processes of thermoplastic and thermoset based composites.	[2.5]	3	IV
Q.5(b)	Describe the steps in Pultrusion. Mention one limitation of this process.	[2.5]	3	II

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