

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

CLASS: B.TECH.
BRANCH: CHEMICAL ENGG.

SEMESTER : V
SESSION : MO/2025

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)	Compare between thermoplastic and thermoset polymers. Which additives are required for thermoplastics, and which are required for thermoset?	[2+2]	1 1
Q.1(b)	Classify plasticizers and give examples of each kind.	[1]	1 1
Q.2(a)	Compare between plasticizers and lubricants.	[2]	1 2
Q.2(b)	'Fillers are always incorporated in rubber samples but may not be required with Polyethylene'. Justify the statement.	[3]	2 2
Q.3(a)	Describe the mechanism of function of crosslinking agents used with polymers.	[1]	2 2
Q.3(b)	Given the following products made of plastics you write down the name of additives required to make these. Assume the polymer as you understand as suitable: Jerry can for ethanol, carry bag for 10kg rice, ball pen body, hospital flooring,	[4]	3 3
Q.4(a)	Describe the mechanism of reaction during manufacturing LDPE. Why is the density so low for it?	[2+1]	2 4
Q.4(b)	Compare the properties of NYLON6 and NYLON66 in respect of the chemical structure of the repeat units.	[2]	1 3
Q.5(a)	Describe the manufacturing conditions of NOVOLAC and write down the reactions involved during its synthesis.	[2]	3 2
Q.5(b)	Explain the mechanism of toughening of a rigid thermoset and a thermoplastic resin with suitable examples.	[3]	3 3

:::::23/09/2025 :::::M