

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

CLASS: BTECH  
BRANCH: CHEMICAL ENGINEERING

SEMESTER : V  
SESSION : MO/2025

SUBJECT: CL341 POLYMER TECHNOLOGY

TIME: 3 Hours

FULL MARKS: 50

**INSTRUCTIONS:**

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
  2. Attempt all questions.
  3. The missing data, if any, may be assumed suitably.
  4. Before attempting the question paper, be sure that you have got the correct question paper.
  5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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Q.1(a)	Explain the mechanism of action of fillers in polymers. Elaborate the terms exfoliation and intercalation of fillers.	[2+3]	1	2
Q.1(b)	Elaborate the function of a coupling agent in polymer bio composite made with Unsaturated polyester and jute fibre.	[5]	2	3
Q.2(a)	“PVC is available in the form of rigid and flexible pipes.” Justify the statement. Explain the mechanism of function of plasticizer in PVC compounds.	[3+3]	2	1
Q.2(b)	Justify the following statement with suitable example: Copolymerization causes improvement in the toughness of polymers	[4]	2	2
Q.3(a)	Write down the reactions and reagents involved in the manufacturing of an unsaturated polyester which has inherent flame resistance.	[5]	3	2
Q.3(b)	Explain the reactions involved in curing of epoxy resin with polyamine catalyst and diacid catalyst.	[5]	3	3
Q.4(a)	Describe the procedure of blending thermoset with thermoplastic resin. Give suitable example.	[4]	4	2
Q.4(b)	Explain the steps of pre-preg manufacturing and draw the vacuum bag forming of composite from those..	[3+3]	4	3
Q.5(a)	Explain the principle of Biaxial stretching of polymer films and mention the use of such films. Illustrate any one method of utilization of plastic films in agriculture fields.	[2+4]	5	3
Q.5(b)	Classify conducting polymers. Give examples of each kind. Write down the principle of conductivity of polymers by doping. Give examples.	[4]	5	3

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