

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

**CLASS: BTECH  
BRANCH: CHEMICAL ENGINEERING- PLASTICS AND POLYMER**

**SEMESTER: IV  
SESSION : SP/2020**

**SUBJECT: CL214 POLYMER TECHNOLOGY-I**

**TIME: 2 HOURS**

**FULL MARKS: 25**

**INSTRUCTIONS:**

1. The total marks of the questions are 25.
  2. Candidates may attempt for all 25 marks.
  3. Before attempting the question paper, be sure that you have got the correct question paper.
  4. The missing data, if any, may be assumed suitably.
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			<b>CO</b>	<b>BL</b>
Q1	(a) Classify filler on the basis of reinforcement. Illustrate its mode of function with polymer matrix.	[2]	1	4
Q1	(b) Describe aging. Explain the effects of aging found in polymers.	[3]	2	2
Q2	(a) Justify plasticizer not favoured in plastic exposed to the weather.	[2]	4	5
Q2	(b) Differentiate between external and internal plasticizer.	[3]	3	2
Q3	(a) Illustrate the different types of blowing agents on the basis of processing of polymer.	[2]	2	3
Q3	(b) Outline the behavior of following anti-aging additive by a schematic diagram plotting O <sub>2</sub> uptake Vs time. i) Pro-oxidant (ii) Weak and strong retarder (iii) Weak and strong antioxidant. Give examples.	[3]	4	4
Q4	(a) Discuss the function of antistatic agents used in polymer film.	[2]	2	2
Q4	(b) Categorize the cross-linking reactions possible with different types of agents. Give examples.	[3]	3	4
Q5	(a) Compare the role of rubber as toughening agents in engineering plastics.	[2]	5	5
Q5	(b) Describe the role of nucleating agents in polymer crystallization.	[3]	4	2

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