

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

**CLASS: B TECH
BRANCH: CHEMICAL ENGINEERING**

**SEMESTER: V
SESSION: MO/2022**

SUBJECT: CL334 POLYMER TECHNOLOGY-I

TIME: 2 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 25.
 2. Candidates 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.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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Q1	(a) List the different characteristics required to become effective additives for polymer	[2]	2	1
Q1	(b) Classify filler based on reinforcement. Write characteristics parameter responsible for efficiency of filler.	[3]	1	4
Q2	(a) What is induction period of antioxidant?	[1]	2	2
Q2	(b) Demonstrate the action of antioxidant during oxidative degradation of polymers? Explain with reaction mechanism	[4]	1	3
Q3	(a) Antistatic agent is very common for polymer film. Why?	[2]	3	3
Q3	(b) What do you mean by nucleation during crystallization of a polymer	[3]	4	2
Q4	(a) What is meant by cross-linking?	[2]	2	2
Q4	(b) Classify cross-linking agents depending upon their mode of action.	[3]	1	3
Q5	(a) Write the synthesis steps of Low density polyethylene (LDPE) with process flow diagram using high pressure stating the importance of using continuous stirred tank reactor.	[4]	4	2
Q5	(b) How the extent of Branch can be controlled in LLDPE	[1]	5	3

::: 29/09/2022 :::M