BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP2023)

CLASS: B.TECH. **SEMESTER : VI**
BRANCH: CHEMICAL ENGG.- PLASTICS & POLYMER **SESSION : SP2023**

SUBJECT: CL312R1 POLYMER PROCESSING

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)	Define elongational viscosity with example.	[2]	CO 312.1	1
Q.1(b)	Explain the effect of temperature dependency on viscosity?	[3]	CO 312.2	2
Q.2(a)	What is Bingham bodies? Discuss with example.	[2]	CO 312.2	1
Q.2(b)	Describe about the different types of rotational rheometers based on design criteria.	[3]	CO 312.1	1
Q.3(a)	Demonstrate about polymer processing in Ram extruder.	[2]	CO 312.1	2
Q.3(b)	A cone & plate rheometer with a 50mm diameter cone having 4-degree angle is used to measure viscosity of a polymer when operating at 1rpm and torque of 0.5 Nm is measured. Evaluate the viscosity of the polymer solution.	[3]	CO 312.5	5
Q.4(a)	What is the role of breaker plate in extruder?	[2]	CO 312.1	1
Q.4(b)	Compare between twin screw and single screw extruder.	[3]	CO 312.1	2
Q.5(a)	Analyse the twin screw design of co-rotating or counter rotating screw configuration for better mixing efficiency.	[1]	CO 312.4	4
Q.5(b)	Derive the drag flow equation for extrusion operation with proper drawing.	[4]	CO 312.1	4

::::::22/02/2023::::::M