

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

**CLASS: BTECH
BRANCH: CHEMICAL**

**SEMESTER : IV
SESSION : SP/2025**

SUBJECT: CL373 ENVIRONMENT & PLASTICS

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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		CO	BL
Q.1(a)	Mention different types of raw materials used to produce plastics.	[5] II	III
Q.1(b)	Briefly point out in what ways does plastic harm the environment.	[5] I	II
Q.2(a)	Compare the positive and negative aspects of plastic materials with other traditional materials.	[5] II	II
Q.2(b)	Mention at least two sorting methods to separate (i) different house-hold plastics mixture; (ii) Nylon 6 from PVC/PET, (iii) PVC from HDPE/PET/PVC.	[5] III	IV
Q.3(a)	Mention the exact techniques used during mechanical recycling of (i) polyurethane; (ii) HDPE containers; ((iii) PET bottle; (iv) PVC bottle, and (v) PVC wire and cable	[5] IV	III
Q.3(b)	Briefly describe two different types of thermal degradation processes that happened during melt processing of waste polyethylene.	[5] II	III
Q.4(a)	Compare the advantages and disadvantages of chemical recycling with mechanical recycling of waste plastics	[5] III	II
Q.4(b)	Describe the chemical processes used during chemical recycling of PET and nylon 6	[5] IV	II
Q.5(a)	Briefly describe the process used for feedstock recycling of PE, PP and PS and end product	[5] IV	III
Q.5(b)	Tabulate the end-use applications of the recycled materials obtained from (i) HDPE containers, (ii) PP made car batteries, (iii) nylon made carpet, coach seats, and (iv) polycarbonate made compact discs.	[5] II	II

:::29/04/2025:::M