

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

CLASS: IMSc.
BRANCH: CHEMISTRY

SEMESTER: II
SESSION: SP-2023

SUBJECT: CH115 GREEN METHODS IN CHEMISTRY

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
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Q.1(a)	What do you mean by the term product yield? Why product yield of an industrial operation cannot be 100%?	[3]	1	2
Q.1(b)	Outline the salient features of Atom Economy.	[2]	2	2
Q.2(a)	Compute the atom economy of ethanol-ethanoic acid esterification reaction.	[2.5]	2	3
Q.2(b)	Compute the atom economy of thermosetting of Bakelite from Bakelite resin.	[2.5]	2	3
Q.3(a)	Leblanc's process of production of soda-ash was ecologically unsustainable. Elaborate.	[3]	1	3
Q.3(b)	Comment with suitable example on the Atom Economy of Substitution reactions.	[2]	1	3
Q.4(a)	Write the structure of Ibuprofen.	[2]	2	4
Q.4(b)	Write the Greener synthetic steps for the synthesis of Ibuprofen.	[3]	1	3
Q.5(a)	What are the salient features of Supercritical CO ₂ as green solvent.	[2]	1	3
Q.5(b)	Give example of a less hazardous chemical synthesis.	[3]	2	4

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