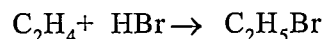


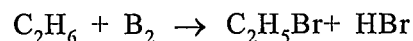
(iii) Microwave radiation and ultrasound are the nonconventional sources of energy in carrying out the chemical transformation. Explain (3, 3, 3.5)

5. (i) Bromoethane may be synthesized by following two routes:

(I) Bromoethane can be produced from the reactants ethene (ethylene) and hydrogen bromide in an addition reaction.



(II) Bromoethane can also be manufactured using the reactants ethane and bromine in a substitution reaction



(a) What is the % atom economy of both the reactions?

(b) What advantages would be there if route (I) was offered as a green Chemistry alternative for the production of Bromoethane.

(ii) Explain why the use of product yield as a way of measuring the efficiency of a chemical reaction is considered to be inadequate in the context of green chemistry.

(iii) Define the term Atom Economy and how it is applied in Green Chemistry. (3, 3, 3.5)

(500)

[This question paper contains 4 printed pages.]

Your Roll No.....

आपका अनुक्रमांक.....

Sr. No. of Question Paper : 5723

I

Unique Paper Code : 32173908

Name of the Paper : SEC.- Green Method in Chemistry

Name of the Course : B.Sc. (Hons) Chemistry/
B.Sc (Prog)

Semester : III/V

Duration : 2 Hours

Maximum Marks : 38

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.

2. Attempt any four questions from the five Questions

1. The first listed of the 12 Principles of Green Chemistry is?

a) Prevent waste

b) Catalysis

P.T.O.

- c) Atom economy
- d) Benign solvent
- (ii) Green chemists reduce risk by?
 - a) Reducing the hazard inherent in a chemical product or process
 - b) Minimizing the use of all chemicals
 - c) Inventing technologies that will clean up toxic sites
 - d) Developing recycled products
- (iii) Which of the following is a challenge for green chemists?
 - a) Awareness of the benefits of green chemistry
 - b) Developing chemicals that are recyclable
 - c) Training for cleaning up chemical spills
 - d) Knowing when to reduce and eliminate hazardous waste
- (iv) Green chemistry is more expensive than traditional chemistry?
 - a) True
 - b) False
- (v) Shortly after mid-night in 1984, a reaction caused poisonous methyl isocyanate gas to leak from a factory in this city,.....causing 3,700 deaths?
(5x1)

- (vi) What is green chemistry? How it is different from conventional chemistry? (4.5)
- 2. Write short notes on
 - (i) Microwave assisted green reactions
 - (ii) Bhopal Gas Tragedy
 - (iii) Biodiesel (3, 3, 3.5)
- 3. (i) Briefly describe what factors should be kept in mind by the chemist, while designing a chemical reaction.
 - (ii) Write the basic Principle of green Chemistry in case of use of catalyst and prevention of hazardous designing safer chemicals.
 - (iii) What are Right fit Azo pigments? How are these azo pigments superior to traditionally used inorganic based pigments? (3,3, 3.5)
- 4. (i) What do you mean by supercritical carbon dioxide? Discuss the chemistry of cleaning action of surfactant assisted supercritical CO₂. What are the environmental benefits?
 - (ii) What are Biocatalysts. Discuss the role of biocatalyst in green chemistry.