

**2023-24**

**Time - 3 hours**

**Full Marks - 60**

*Answer all groups as per instructions.  
Figures in the right hand margin indicate marks.  
Candidates are required to answer  
in their own words as far as practicable.*

**GROUP - A**

1. Answer all questions and fill in the blanks as required. [1 × 8]
- (a) The full form of EPA is \_\_\_\_\_.
- (b) \_\_\_\_\_ poisonous gas was leaked and responsible for Bhopal gas tragedy.
- (c) The cadmium poisoning disorder in Japan is known as \_\_\_\_\_ disease.
- (d) In domestic microwave, normally \_\_\_\_\_ is used as the polar medium.
- (e) What is the chemical formula of DDT ?
- (f) TEL is an \_\_\_\_\_ agent.

[ 2 ]

- (g) B20 blend refers to \_\_\_\_\_ biodiesel and \_\_\_\_\_ petrodiesel.
- (h) Third generation (3G) biofuels are derived from \_\_\_\_\_.

**GROUP - B**

2. Answer any eight of the following within two or three sentences each. [1½ × 8]

- (a) Define sustainable chemistry.
- (b) Does substitution reaction a green synthesis ?
- (c) What do you mean by super critical fluid ?
- (d) Which principle of green chemistry does emphasize on 'atom economy' ?
- (e) Write down the name of the chemists received Nobel Prize for green synthesis in 2005.
- (f) What is the monomer used for the synthesis of Nylon-6 ?
- (g) Define Biocatalyst. Give one example of a biocatalyst.
- (h) Give the examples of two non degradable synthetic polymers.
- (i) What is ISD (inherent safer design) in green chemistry ?
- (j) Define 'multifunctional reagent'.

[ 3 ]

**GROUP - C**

3. Answer any eight of the following within 75 words each. [2 × 8]

- (a) Define E-factor.
- (b) What are the main obstacles in pursuit of the goals of green chemistry ?
- (c) Describe briefly or write a note on water as green solvent.
- (d) Describe the green synthesis of Ibuprofen.
- (e) Explain the phenomena of microwave heating in brief.
- (f) What was the reason behind 'Flixborough Accident' ?
- (g) Differentiate between biodiesel and diesel.
- (h) What is cradle to cradle carpeting ?
- (i) What are the benefits of Right fit Azo pigments ?
- (j) Write down the green synthesis of paracetamol.

**GROUP - D**

4. Answer any four of the following. [6 × 4]

- (a) Discuss the "twelve principle of Green Chemistry".
- (b) What is Designer solvent ? Give a brief account on Designer solvent as Green Solvent.

P.T.O.

[ 4 ]

- (c) Write notes on : [3 × 2]
- (i) Phase Transfer Catalysts
  - (ii) Green Synthesis of Benzyl cyanide from Benzyl Chloride
- (d) Give a brief account on the green synthesis of Adipic acid from D-Glucose.
- (e) Write the green synthesis procedure for : [3 × 2]
- (i) Knoevenagel condensation
  - (ii) Michael Addition Reactions
- (f) What is PLA ? Describe the green synthesis of PLA from corn.
- (g) Define biodiesel. What are the sources of biodiesel ? Write its merit over the petrodiesel.