QP Code: D153546 Total Pages: 02 Name: _____

Register No: _____

FIFTH SEMESTER (CUFYUGP) DEGREE EXAMINATION NOVEMBER 2026

CHEMISTRY

CHE5EJ301 GREEN CHEMISTRY

2024 Admission onwards

Time : 2 Hours **Maximum Marks : 70**

Section A

All Questions can be answered. Each Question carries 3 marks (Ceiling : 24 Marks)

1	Name any two environmental laws relevant to the emergence of green chemistry, with their year of enactment.
2	Briefly explain the emergence of green chemistry as a discipline.
3	State the need for green chemistry with respect to waste minimization.
4	List any three of Anastas' twelve principles of green chemistry.
5	What are renewable starting materials? Give two examples.
6	Define biodiesel and name the reaction typically used for its preparation.
7	What is dimethyl carbonate? Mention its use as a green reagent.
8	Define an ionic liquid. Name two ionic liquids mentioned in the syllabus used as green solvents.
9	What makes supercritical carbon dioxide an eco-friendly solvent in green synthesis, and how is it separated from the final product?
10	Explain briefly the mechanism of microwave-assisted reactions.
Section B	
All Questions can be answered. Each Question carries 6 marks (Ceiling : 36 Marks)	
11	Discuss the need for green chemistry with reference to prevention and minimization of chemical waste
12	Explain any four of Anastas' twelve principles of green chemistry with suitable examples.
13	Discuss the use of renewable starting materials in green synthesis with examples of biodiesel and bioethanol.
14	Explain the role of green oxidants in eco-friendly oxidation reactions.
15	Explain the concept of green catalysts with suitable examples
16	Discuss the use of water and supercritical carbon dioxide as green solvents, with their advantages and limitations.
17	Explain the mechanism of microwave-assisted reactions and describe the microwave-assisted solvent-free synthesis of copper phthalocyanine.
18	Discuss microwave-assisted reactions carried out in water, with reference to Hofmann elimination and decarboxylation reactions.
Section C	
Answer any ONE. Each Question carries 10 marks (1x10=10 Marks)	

19	Discuss in detail the concept and emergence of green chemistry. Explain Anastas' twelve principles of green chemistry, illustrating any six of them with suitable examples.
20	Give a detailed account of alternate starting materials and reagents used in green synthesis and discuss the photochemical synthesis of vitamin D as compared to the conventional method.

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