

B.Sc. - III CBCS Pattern Semester-V  
**USCCHT12 - Chemistry Paper-IV (Green Chemistry)**

P. Pages : 2

Time : Three Hours



**GUG/W/23/13092**

Max. Marks : 50

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1. a) Explain twelve principles of green chemistry. 5  
b) Explain the need of green chemistry? Discuss goals of green chemistry? 5

**OR**

- c) Write a note on atom economy. 2½  
d) Write a note on solvents used in green chemistry. 2½  
e) Write a note on ionic liquids used in green synthesis. 2½  
f) Discuss minimization of hazardous toxic products in green synthesis. 2½
2. a) Explain microwave assisted reactions in organic solvent. 5  
i) Fries rearrangement  
ii) Diels-Alder Reaction  
b) Give green synthesis method of following compound- 5  
i) Catechol  
ii) Ibuprofen

**OR**

- c) Explain hydrolysis of methyl benzoate to Benzamide using microwave assisted reaction in water. 2½  
d) Explain green synthesis of BHT. 2½  
e) Explain microwave assisted esterification reaction in organic solvent. 2½  
f) Explain any one microwave assisted solid state reaction. 2½
3. a) Explain the following ultrasound assisted reactions- 5  
i) Coupling Reaction ii) Strecker synthesis  
b) Explain the role of Tellurium in organic synthesis. 5

**OR**

- c) Explain solid state polymerization of amorphous polymers using diphenyl carbonate. 2½
- d) Explain following ultrasound assisted reaction saponification. 2½
- e) Free radical Bromination? 2½
- f) Explain the role of Biocatalysis in organic synthesis. 2½
- 4.** a) Explain in detail- 5
- i) Biomimetic Reagents
- ii) Multifunctional Reagents
- b) Write a note on Energy requirement for reactions with respect to- 5
- i) Use of microwave
- ii) Ultrasonic energy

**OR**

- c) Write a note on combinatorial green chemistry. 2½
- d) Explain the role of green chemistry in sustainable development. 2½
- e) Write a note on selection of starting material in green chemistry. 2½
- f) Write a note on protecting groups in green synthesis. 2½
- 5.** Solve **any ten**. **1x10**
- a) Give any one example of immobilized solvent.
- b) Define green solvents.
- c) What is solventless process?
- d) structure of paracetamol.
- e) Give chemical reaction of decarboxylation.
- f) Give reaction for synthesis of nitrites from aldehyde.
- g) Give chemical reaction for Cannizzaro reaction.
- h) Give chemical reaction for Reformatsky Reaction.
- i) What is Clayton.
- j) Define stoichiometric reagents.
- k) What are blocking groups in green chemistry.
- l) Examples of catalytic reagents in green synthesis.

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