

Roll No.....

Total No. of Printed Pages: 1

Total No. of Questions: [11]

M.Sc. (Chemistry) (Semester – 3rd)

GREEN CHEMISTRY

Subject Code: MCHMD1313

Paper ID: [20220221]

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It carries 16 marks. It consists of 4 questions of 4 marks each.
2. Section B consist of 4 questions of 8 marks each. The student has to attempt any 3 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(4 marks each)

- Q1. a. What is cavitation in ultrasound chemistry?
b. Explain the microwave assisted condensation of Active Methylene Compounds?
- Q2. a. Write the method of formation of crown ethers?
b. How are phase transfer catalyst facilitating Wittig Reaction?
- Q3. a. Discuss methods of preparation of ionic liquids?
b. What are Polymer Supported Peptide Coupling Agent? Write examples?
- Q4. a. Explain Knoevenagel Reaction in aqueous medium? Discuss with examples?
b. What is Michael addition? Discuss with examples?

Section – B

(8 marks each)

- Q5. a. How are Simon-Smith Reaction conducted under ultrasound irradiation? Explain with examples?
b. What are Microwave Assisted solvent Free Reactions? Discuss with special emphasis to synthesis of anhydrides?
- Q6. a. How can Heck Reaction be explored in ionic liquids?
b. What are methylene insertion reaction in ionic liquids? Explain with example?
- Q7. a. How are phase transfer reagents helpful in elimination reactions? Explain with examples?
b. How are 3-alkyl coumarins prepared using phase transfer catalyst?
c. Explain N-alkylation of Aziridines using Phase transfer reagent?
- Q8. a. Discuss the Diels-Alder Reaction in aqueous phase
b. What is dihydroxylation? Explain dihydroxylation in aqueous medium?

Section – C

(10 marks each)

- Q9. a. Discuss the various Oxidation reactions under microwave irradiation?
b. Explain the Bouveault reaction under ultrasound condition?
c. Explain the formation of selective *O*-Alkylation or *N*-alkylation in ionic liquids?
- Q10. a. How can Addition Reactions be facilitated using ultrasound? Discuss?
b. Discuss the Pinacol Coupling under aqueous conditions?
c. Explain the Oxidation reactions using crown ether?
- Q11. a. What is Benzoin condensation?
b. What is mechanism of Phase transfer reaction?
c. What are Polymer Supported Photosensitizer.