

M.Sc. (Chemistry) (NEP Pattern) Semester-II  
**02MSCCH02 - Organic Chemistry-II**

P. Pages : 2

Time : Three Hours



**GUG/S/25/15351**

Max. Marks : 80

Notes : 1. All questions are compulsory and carry equal marks.

1. a) What is electrophilic addition to carbon-carbon multiple bond? Discuss its mechanism and stereochemistry with suitable example. 8
- b) Give the mechanism of following reaction with suitable example. 8  
i) Aldol condensation Reaction. ii) Claisen condensation Reaction
- OR**
- c) Predict the product 4
- i)  $\text{CH}_3 - \overset{\text{O}}{\parallel} \text{C} - \text{CH}_3 + \text{CH}_3 - \text{Mg} - \text{Br} \xrightarrow{\text{Dry ether}} \text{A} \xrightarrow{\text{H}_3\text{O}^+} \text{B}$
- ii)  $\text{CH}_3 - \overset{\text{O}}{\parallel} \text{C} - \text{H} + (\text{C}_2\text{H}_5)_2\text{Zn} \xrightarrow{\text{Dry ether}} \text{A} \xrightarrow{\text{H}_3\text{O}^+} \text{B}$
- d) Write a note on Ammonolysis of ester. 4
- e) State and explain Hydroboration reaction. 4
- f) How will you reduce aldehyde & Ketone by  $\text{NaBH}_4$ . 4
2. a) Give the mechanism of following rearrangement with suitable example. 8  
i) Pinacol – Pinacolone ii) Beckman
- b) Explain type of free Radical reaction with suitable example. 8
- OR**
- c) What is Neighbouring group assistance? Explain with example. 4
- d) Write a short note on reactivity of Aliphatic substrate in term of free radical reaction with suitable example. 4
- e) Give the mechanism of Benzil-Benzilic acid rearrangement. 4
- f) Give the mechanism of Lossen rearrangement. 4
3. a) Explain the following reaction with suitable example. 8  
i) Sandmeyer Reaction ii) Hunsdiecker reaction.
- b) What is  $\text{E}_1$  and  $\text{E}_1\text{CB}$  reaction? Discuss its mechanism with example. 8

**OR**

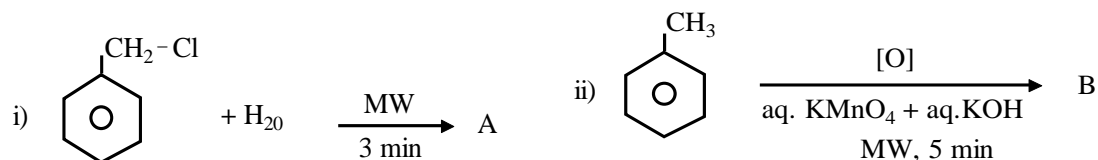
- c) State and explain Saytzeff and Hoffmon's rule. 4
- d) Explain with mechanism: Hydroxylation at Benzene by Fenton reagent. 4
- e) Explain bromination reaction at allylic carbon by NBS reagent. 4
- f) What is pyrolytic elimination ( $E_1$ )? Give the mechanism with suitable example. 4

**OR**

4. a) What is green chemistry? Explain basic principles of green chemistry. 8
- b) How will you prepare: 8
- i) Paracetamol from phenol ii) Ibuprofen from Isobutyl benzene

**OR**

- c) Write a short note on nanorods and nanotubes. 4
- d) What is the difference between photochemical and electrochemical reaction. 4
- e) Predict the product 4



- f) Explain Biginelli Reaction with example. 4

**Any Eight**

5. a) Define green solvent? Give three example. 2
- b) What is the role of Biocatalyst in organic synthesis. 2
- c) How will you prepare: Dimethyl Ketone from methyl Lithium. 2
- d) What is Michael reaction. 2
- e) Write the chemical equation of Stobbe's reaction. 2
- f) Write the name and draw the structure of reagent used in witting reaction. 2
- g) Name the four functional groups, which are reduced by  $\text{LiAlH}_4$ . 2
- h) What is Reed reaction. Give its one example. 2
- i) Name the product formed in Wagner- Meerwein and Schmidt rearrangement. 2
- j) What is  $E_2$  reaction and what is its Kinetic order. 2

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