

B.Sc.-M.Sc. INTEGRATED PROGRAMME, CHEMISTRY
SEMESTER III EXAMINATION-2020
PAPER CODE- BCH-CC7TH
ORGANIC CHEMISTRY-II

Time: Three Hours

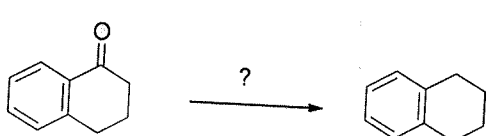
Maximum marks: 75

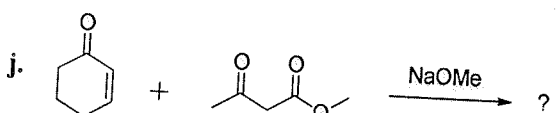
Attempt all questions. All parts of a question must be attempted in continuation. Start answer of a fresh question on a new page.

Q1. Answer all the questions given below (a-j):

(10x1.5= 15)

- a. When two moles of ethyl chloride react with two moles of sodium in the presence of ether which of the following will be formed?
 (A) 2 moles of ethane (B) 1 moles of ethane (C) 2 moles of butane (D) 1 mole of butane
- b. What is Appel reaction?
- c. Identify the product formed in the following reaction:

$$\text{R-Cl} \xrightarrow{\text{Dry Ag}_2\text{O}} ?$$
 (A) R-OH (B) R-OAg (C) R-O-R (D) R-H
- d. Why do alkyl halides undergo nucleophilic substitution reactions and aryl halides do not?
- e. What is DDT? How do you prepare DDT?
- f. How do you distinguish 1°, 2° and 3° alcohols?
- g. What is carbylamines test?
- h. $\text{CHCl}_3 + \text{HNO}_3 \longrightarrow ?$
- i. 

$$\text{C}_6\text{H}_5\text{C(=O)C}_6\text{H}_{10} \xrightarrow{?} \text{C}_{10}\text{H}_{12}$$
- j. 

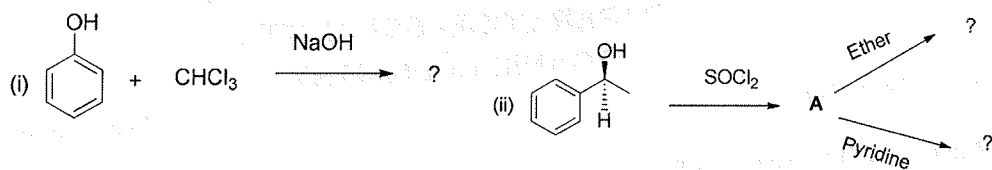
$$\text{C}_6\text{H}_{10}\text{O} + \text{CH}_3\text{COCH}_2\text{CO}_2\text{CH}_3 \xrightarrow{\text{NaOMe}} ?$$

Q2. Answer ANY TWO of the following:

(2x7.5=15)

- A. Write a short note on $\text{S}_{\text{N}}1$ and $\text{S}_{\text{N}}2$ reactions
- B. Distinguish between $\text{S}_{\text{N}}1$ and $\text{S}_{\text{N}}2$ reactions

C. Complete the following conversions with suitable mechanism:



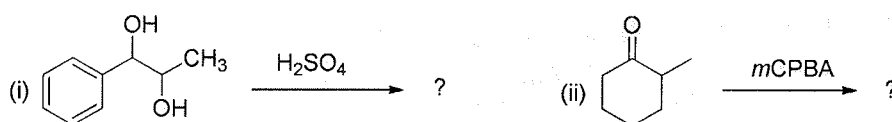
D. Write a short note on the following reactions

- (i) Swart's reaction (ii) Sandmeyer reaction (iii) Schiemann reaction

Q3. Answer ANY TWO of the following:

(2x7.5=15)

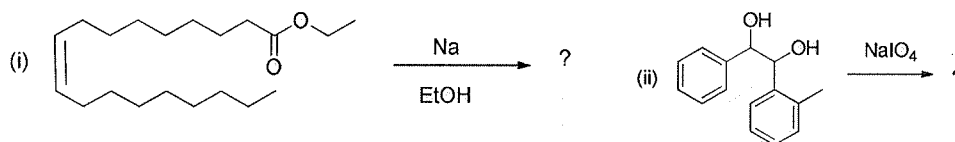
A. Complete the following conversions with suitable mechanism:



B. Answer the following:

- (i) Explain the synthesis of Paracetamol using Beckmann rearrangement with suitable mechanism.
(ii) An oxime (**A**) upon reacting with Con. H_2SO_4 has formed an amide (**B**). Compound **B** upon acid hydrolysis has formed anisic acid (*p*-methoxy benzoic acid) **C** and toluidine (*p*-methyl aniline) **D**. Identify the exact geometry of the oxime **A**.

C. Identify the products formed in the following reactions and explain the reaction mechanism.



D. Write a short note on the following reactions:

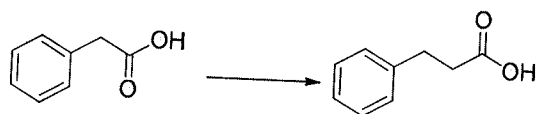
- (i) Swern oxidation (ii) Claisen rearrangement

Q4. Answer ANY TWO of the following:

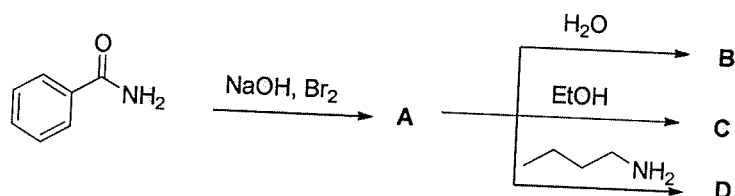
(2x7.5=15)

- A. Explain Claisen and Dieckmann condensation reactions with suitable mechanism.
B. What is Curtius rearrangement? Explain with suitable mechanism.

C. How do you bring the following conversion? Explain with suitable mechanism.



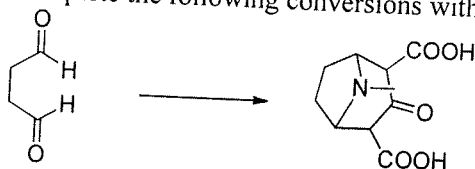
D. Complete the following conversions with suitable mechanism:



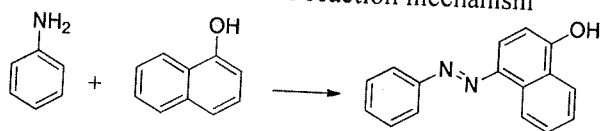
Q.5. Answer **ANY TWO** of the following:

(2x7.5=15)

A. Complete the following conversions with suitable mechanism:



B. Identify the suitable reaction conditions for the product formation of the following reaction and illustrate the reaction mechanism



C. Write a brief note on the following reactions:

(i) Hoffmann elimination reaction (ii) Schotten-Baumann reaction

D. How do you distinguish between 1°, 2° and 3° amines?

