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School of Chemical & Life Sciences
M.Sc. Chemistry/Semester-III Examination-2023
Paper Title: Organic Synthesis-I
Paper Code: MCHCCO-302

Time 3 hours

Maximum Marks 75

Note: This paper has 3 sections A, B, and C, Attempt all the three sections

Section A: Answer *all* the questions; **Section B:** Answer *any 2* out of 4; **Section C:** Answer *all* the questions, each question has an *internal choice*

Abbreviations Used

CLO- Course Outcome, PLO- Program Outcome, BTL- Bloom Taxonomy Level: BT level 1-Remember; BT level 2-Understand; BT level 3-Apply; BT level 4-Analyse; BT level 5-Evaluate, BT level 6-Create

Section A**Very Short Type Questions (attempt all)****(10x2=20Marks)****Q. No Question****BTL CLO PLO**

A 1. What is hydrogenolysis?

1 1 1

A 2. State the Cram's rule.

1 1 1

A 3. What is Rosenmund reduction?

1 1 1

A 4. What is Dakin reaction?

2 3 1

A 5. Which type of isomers formed in rearrangement reactions?

1 2 1

(A) Structural isomers (B) Geometrical isomers

(C) Optical isomers (D) Conformational isomers

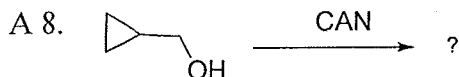
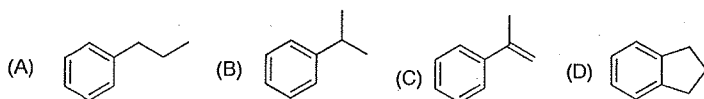
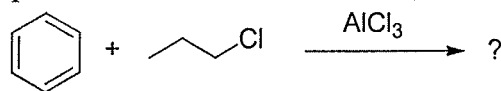
A 6. Following rearrangement occurs in presence of hydrazoic acid:

2 2 1

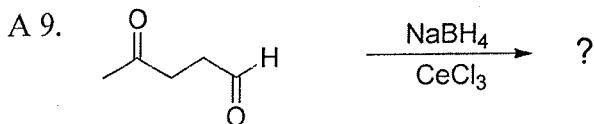
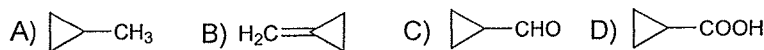
(A) Lossen (B) Curtius (C) Neber (D) Schmidt

A 7. Which is the major product formed in the following reaction:

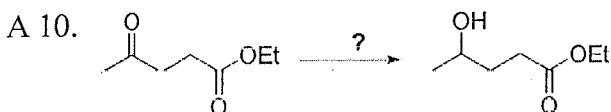
2 3 1



2 5 1



2 4 1



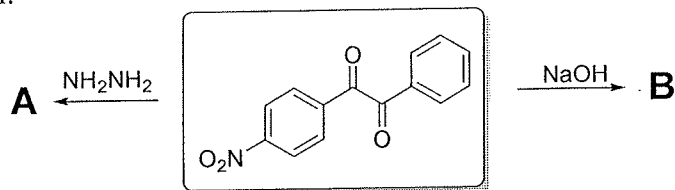
2 4 1

Section B

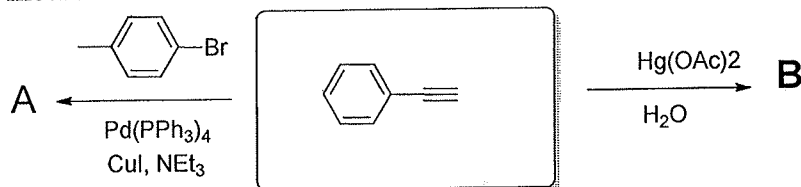
Long Type questions (Attempt any two out four)

Q. No Question

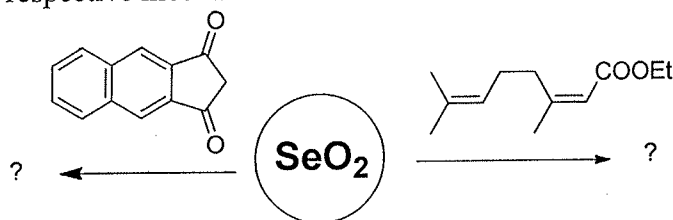
B 1. Explain the product formation of the following conversions with suitable mechanism:



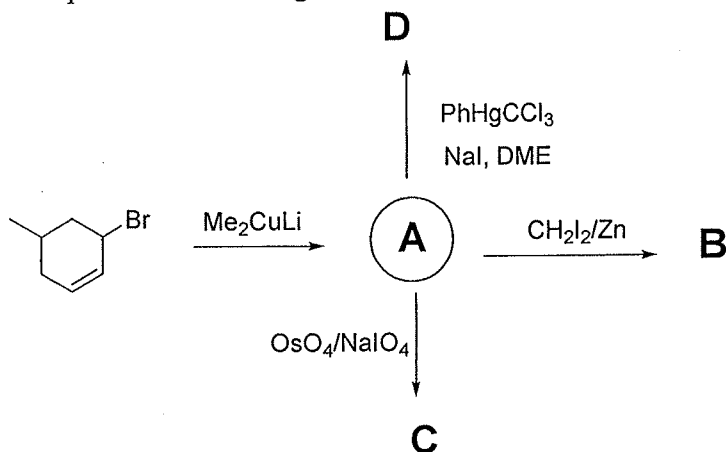
B 2. Explain the product formation of the following conversions with suitable mechanism:



B 3. Identify the products formed in the following reactions and explain their respective mechanisms.



B 4. Complete the following conversions with suitable mechanisms



(2x10=20) Marks

BTL	CLO	PLO
6	3	3

5 4 3

3/5 5 3

5/6 3 3

Section C

Short Type questions. (Attempt all questions)

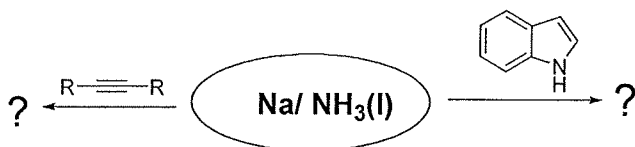
Q.No	Questions	BTL	CLO	PLO
C 1.	What is transmetalation? Explain with Suzuki Coupling.	3/4	1	2

OR

C 2.	Write a short note on Reformatsky reaction Explain any oxidative method for the formation of trans 1,2-diols from an olefin.	4	5	2
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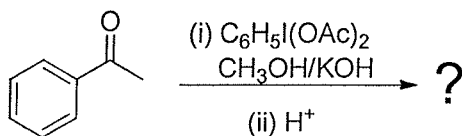
OR

C 3.	What is Swern oxidation? Explain with suitable mechanism Identify the products formed in the following reaction and depict the mechanism of their formation.	3/4	3	2/4
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OR

Explain the product formed in the following reaction with suitable mechanism.

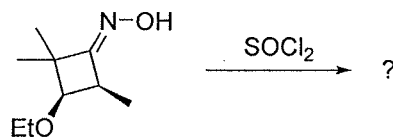


C 4.	Explain the application of Barton reaction in organic synthesis with suitable mechanism.	3	1	2
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OR

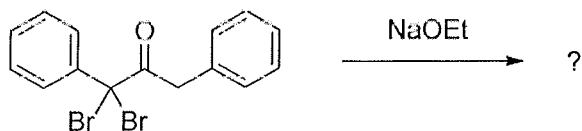
What is **HLF reaction**? Draw the mechanism of HLF reaction with relevant examples.

C 5.	Predict the appropriate product formed in the following reaction and depicts it's mechanism.	4	2	2
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OR

Identify the product formed in the following reaction with suitable mechanism:

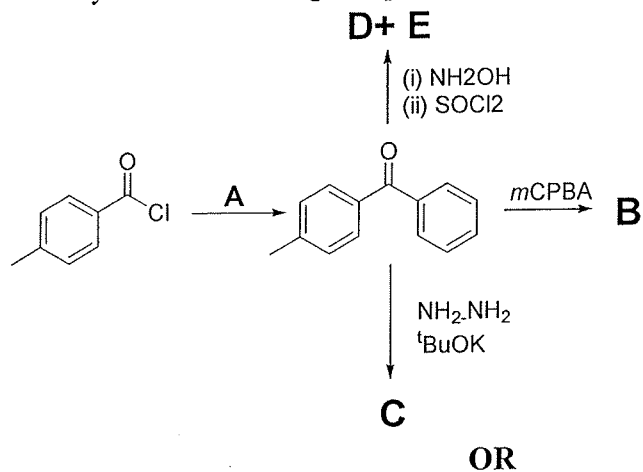


C 6. Identify the suitable reagents/products in the following conversions:

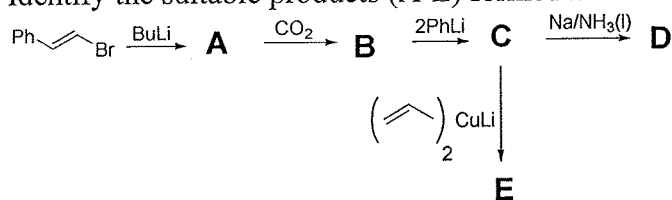
3/4

4

3/4



Identify the suitable products (A-E) formed in the following conversions:

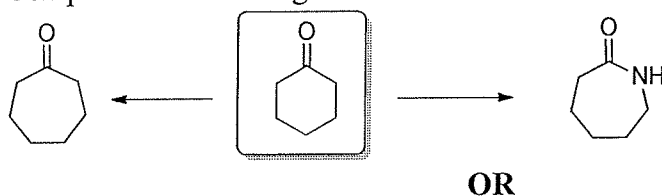


C 7. Complete the following conversions with suitable mechanism:

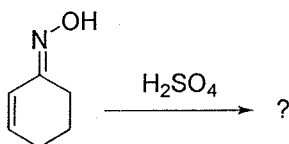
3/4

2

3/5



Outline the mechanism of the following reaction:



.....XXXX.....