

[143]

SEAT No. _____

No. of Printed Pages : 03

SARDAR PATEL UNIVERSITY

M.Sc. Semester-III (Organic Chemistry) Examination

Wednesday, 20th November 2019

Organic Synthesis – A Disconnection approach: PS03CORC02

Time: 02:00 P.M. to 05:00 P.M.

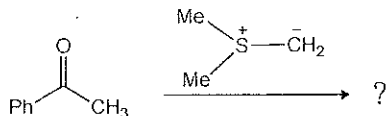
Marks: [70]

Note: Right hand figures indicate marks

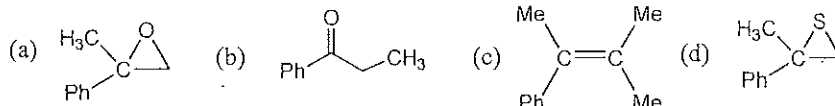
Q-1 Select the correct answer in the following. [08]

- The process in which one group is written in place of another group is known as _____.
(a) Disconnection (b) FGI (c) synthetic equivalent (d) synthon
- In a disconnection, the reconnection concept is possible in _____.
(a) 1,3-dicarbonyl compounds (b) 1,4-dicarbonyl compounds
(c) 1,5-dicarbonyl compounds (d) 1,6-dicarbonyl compounds
- Which of the following reaction is used for synthesis of olefins?
(a) Robinson reaction (b) Wittig reaction
(c) Mannich reaction (d) Aldol condensation
- Which of the following reagent used for syn-hydroxylation of olefin?
(a) OsO₄ (b) O₃ (c) SeO₂ (d) CrO₃

5.



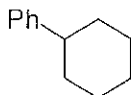
The product formed for the above reaction is _____.



- The reagent used for allylic bromination is _____.
(a) Br₂/AcOH (b) aq. Br₂ (c) NBS (d) NaOBr
- The umpolung approach will make the carbonyl carbon of aldehyde _____.
(a) nucleophilic (b) electrophilic (c) neutral (d) Both a & b
- Phthalic anhydride is used for the protection of _____.
(a) ketone (b) aldehyde (c) amine (d) phenol

Q-2 Answer the following (Any Seven). [14]

- Define the terms (a) Retrosynthesis (b) Synthon
- Do the disconnection and plan the synthesis of following molecule.



- With suitable example show the use of Darzens reaction in epoxide preparation.
- Illustrate the term illogical electrophile.
- Give the preparation of valine using Strecker amino acid synthesis.

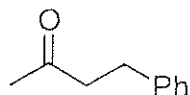
(1)

[PTO]

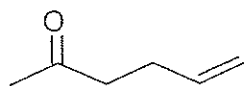
6. Write the dimerization products of unsubstituted and disubstituted ketenes in the absence of nucleophile.
7. Write down protection and deprotection of amines.
8. Explain FGA with suitable example.
9. Write down protection and deprotection of alcohols.

Q-3 [A] Do the disconnection and plan the synthesis for the following molecules. [06]

1.

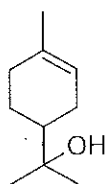


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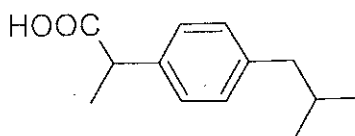


[B] Do the disconnection and plan the synthesis for the following molecules. [06]

1.



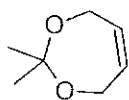
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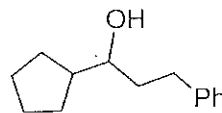
OR

[B] Do the disconnection and plan the synthesis for the following molecules. [06]

1.

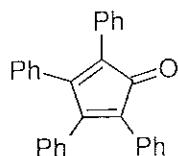


2.

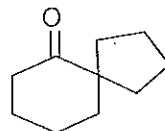


Q-4 [A] Do the disconnection and plan the synthesis for the following molecules. [06]

1.

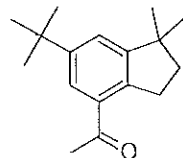


2.

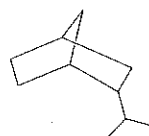


[B] Do the disconnection and plan the synthesis for the following molecules. [06]

1.



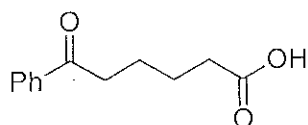
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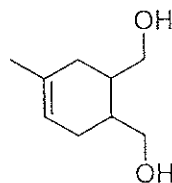
OR

[B] Do the disconnection and plan the synthesis for the following molecules. [06]

1.



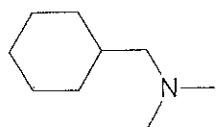
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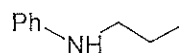
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Q-5 [A] Do the disconnection and plan the synthesis for the following molecules. [06]

1.

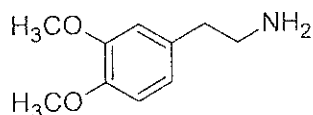


2.

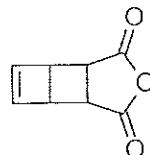


[B] Do the disconnection and plan the synthesis for the following molecules. [06]

1.



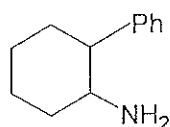
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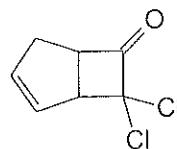
OR

[B] Do the disconnection and plan the synthesis for the following molecules. [06]

1.

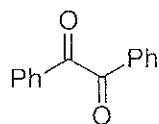


2.

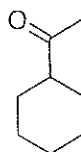


Q-6 [A] Do the disconnection and plan the synthesis for the following molecules using unpolung of carbonyl group reactivity. [06]

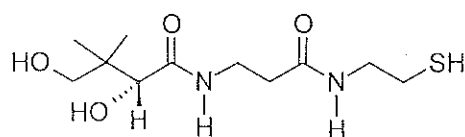
1.



2.

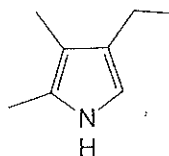


[B] Give the synthesis of following intermediate used in the synthesis of Coenzyme A. [06]



OR

[B] 1. Explain the protection and deprotection of aldehydes and ketones. [03]
2. Give the synthesis of pyrrole derivative used in the synthesis of Mesoporphyrin-IX. [03]



—X—

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