

2016

ORGANIC SYNTHESIS

Time : Three Hours]

[Maximum Marks : 80

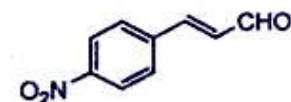
Answer from both the Sections as directed. The figures in the right-hand margin indicate marks.

SECTION-A

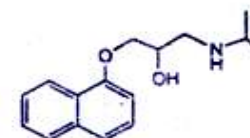
1. Answer any **four** of the following :

4×4

(a) Using two group disconnection approach how to make the following compound :



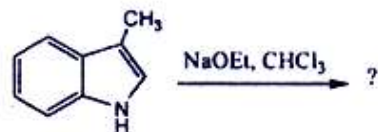
(b) Write the retrosynthetic path of the following compound :



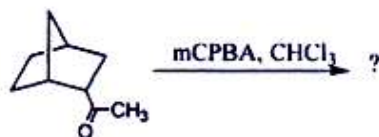
(c) Explain the term umpolung with example.

(2)

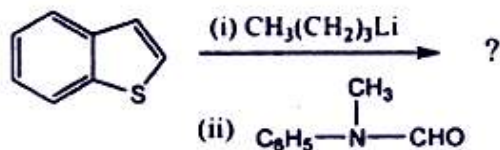
- (d) Predict the product and suggest a mechanism of the following reaction :



- (e) Predict the product and suggest a mechanism of the following reaction :



- (f) Write the product and mechanism of the following reactions :

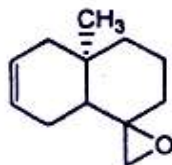


OR

2. Answer all questions :

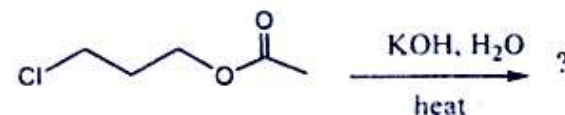
2×8

- (a) Explain Chemoselectivity with example.
(b) Using retrosynthetic analysis suggest a suitable method to synthesize the following compound :



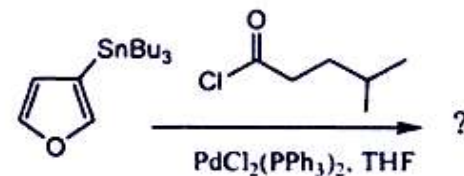
(3)

- (c) Write the product of the following reaction :

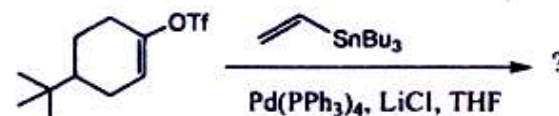


- (d) BOC is deprotected under acidic conditions while Fmoc under basic conditions. Explain.

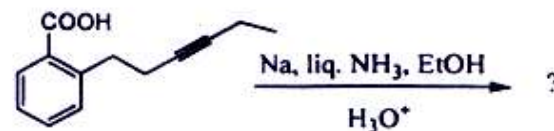
- (e) Write the product of the following reaction :



- (f) Write the product of the following reaction :



- (g) Write one method of synthesis of Chromene.
(h) Write the product of the following reaction :

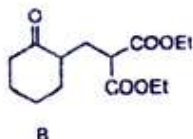
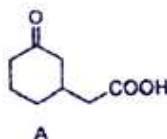


(4)

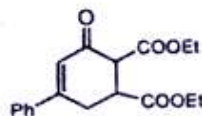
SECTION-B

Answer all questions :

3. (a) Based on disconnection approach, outline synthesis of the following two compounds : 4+4



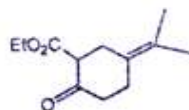
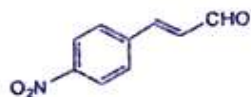
- (b) Outline the synthesis of the following compound : 4



- (c) Explain the importance of protecting group in organic synthesis with suitable example. 4

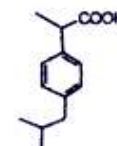
OR

4. (a) Using disconnection approach, design a convenient synthesis for any one of the following compound : 4

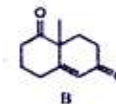
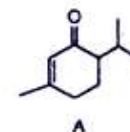


(5)

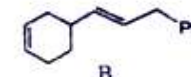
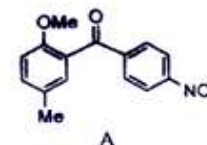
- (b) Using one group C-C disconnection how to prepare the following compound : 4



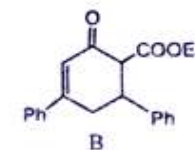
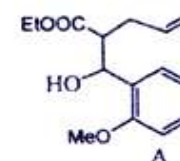
- (c) Using disconnection approach, design a convenient synthesis for each of the following compounds : 4+4



5. (a) Write the retrosynthetic approach of the following two compounds : 4+4



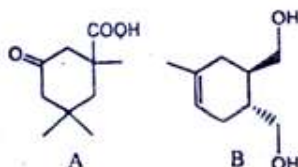
- (b) Write the retrosynthetic path of the following two compounds : 4+4



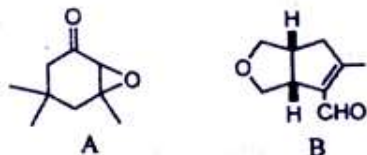
OR

(6)

6. (a) Using retrosynthetic analysis, suggest suitable methods of synthesize the following compounds : 4+4



- (b) Using retrosynthesis how can you make the following compounds ? 4+4



7. (a) Explain, in detail, the mechanism of Fischers Indole synthesis. 6
- (b) Sketch the synthesis of Benzothiophenes using Krollpfeiffer method. 4
- (c) Write down the synthesis of 3-methylchromone and 3-phenylchromone. 3+3

OR

8. (a) Discuss Reissert Indole Synthesis. 6
- (b) Write down the synthesis of Coumarin by Von Pechmann method. 4
- (c) What is Hansch Reaction ? Write two methods of preparation of Benzofuran. 6

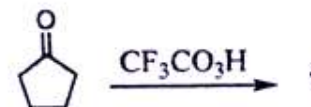
(7)

9. Write notes on the following : 4×4

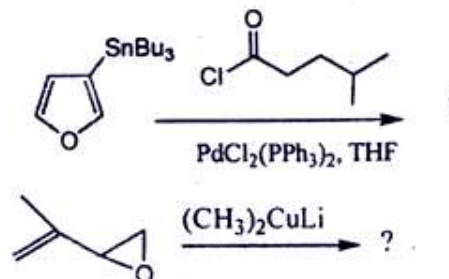
- (a) Shapiro Reaction
(b) Peterson Synthesis
(c) Stille Coupling
(d) Hoffmann-Löffler-Freytag Reaction

OR

10. (a) Write the products and mechanism of the following reaction : 4



- (b) Write short note on Phase transfer catalyst. 4
- (c) Write the products of the following reactions : 2+2



- (d) What is Kumada Coupling reaction ? Explain with mechanism. 4