

QP Code : 76186

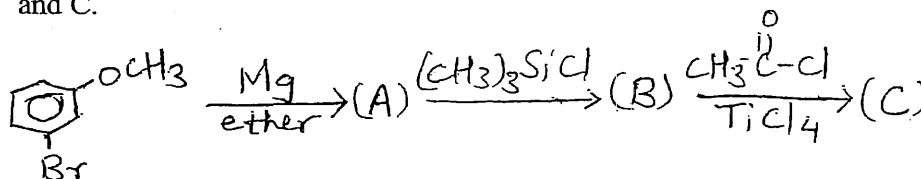
(3 Hours)

[Total Marks : 75

- N. B. : (1) All questions are compulsory.
(2) Figures to the right indicate full marks.

1. Answer any five of the following :-

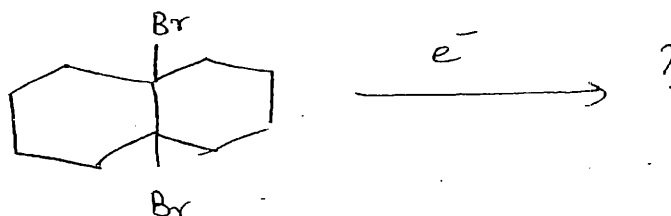
- (a) How would you prepare 2-methyl but-2-ene using phosphorous ylide? 3
(b) What are enamines? How are they prepared from imines? 3
(c) Give an account of olefin metathesis. 3
(d) Complete the following reaction sequence by identifying A, B and C. 3



- (e) What are crown ethers? Draw the structure of 18-crown-6. Why does 18-crown-6 co-ordinate very efficiently with potassium ions and not sodium ions? 3
(f) Complete the following conversion using protection-deprotection process: 3



- (g) Discuss the mechanism of Ugi-4-component reaction. 3
(h) Give the product and mechanism of the following reaction: 3



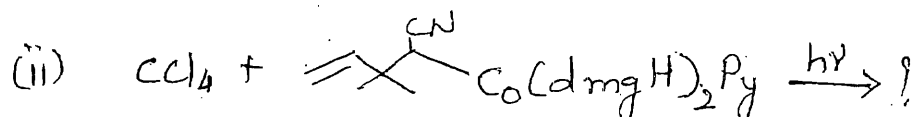
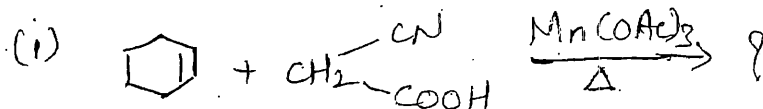
2. (a) What are electrophilic and nucleophilic radicals? With the help of suitable examples, discuss the radical catalysed C-C bond formation in aromatic compounds. 6

OR

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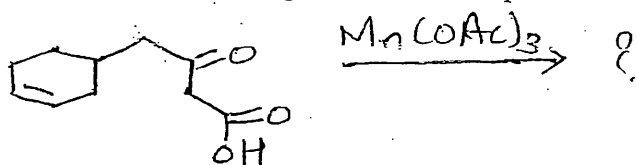
(a) Complete the following reactions:

6



(b) Complete the following reaction and explain its mechanism-

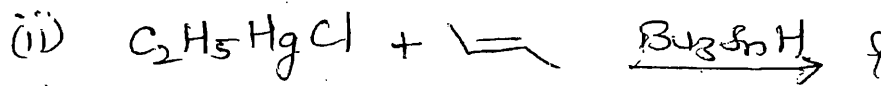
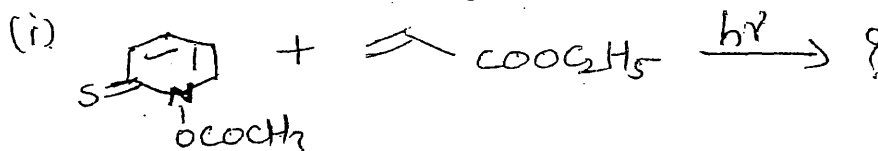
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OR

(b) Complete the following reactions & give their mechanism :

4



5

(c) Discuss the mechanism and stereochemistry involved in Wittig reaction with suitable examples.

6

3. (a) Discuss the mechanism and applications of Heck reaction.

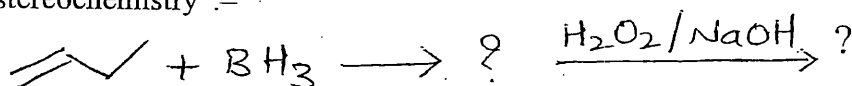
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OR

(a) Discuss the nucleophilic reactions of η^6 chromium arene complex.

4

(b) Complete the following reaction, explain its mechanism and stereochemistry :-



OR

4

(b) Describe the mechanism and regioselectivity involved in oxymercuration of olefin with suitable examples.

5

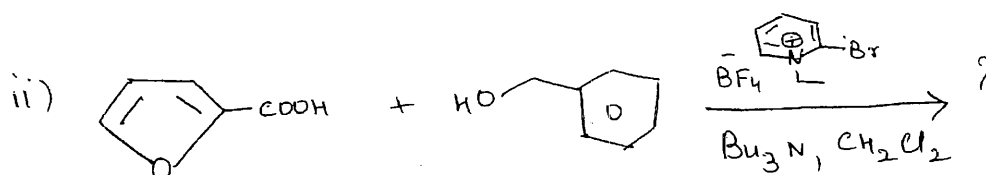
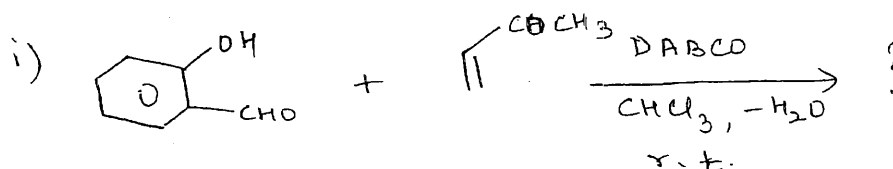
(c) Illustrate with examples, applications of SmI_2 in organic synthesis.

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4. (a) Give an account of 6
 (i) polymer supported reagents
 (ii) micelles in organic synthesis.

OR

- (a) Give the product, name and mechanism of the following reactions : 6



- (b) What are ionic liquids? Discuss their properties and applications in organic synthesis. 4

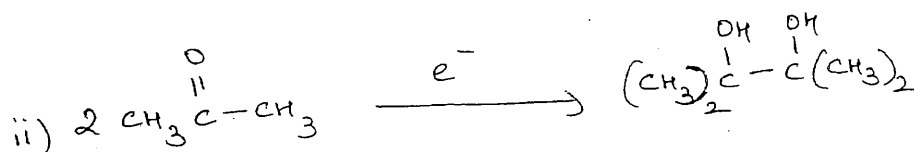
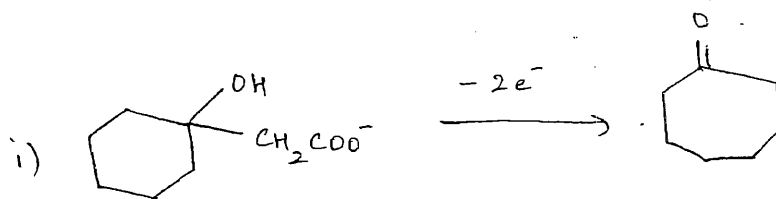
OR

- (b) (i) What is the effect of ultrasound in a liquid medium? 2
 (ii) Discuss two applications of cyclodextrins. 2
 (c) What are domino reactions? Discuss the mechanism of the Hantzsch dihydropyridine synthesis. 5

5. (a) What is acyl anion equivalent? Discuss the generation of acyl anion equivalent via cyanide ion and nitro compound. 6

OR

- (a) Suggest a mechanism for the following reactions : 6



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- (b) Explain synthon and synthetic equivalent. How will you synthesis $C_2H_5COC_6H_5$ from benzaldehyde? 4

OR

- (b) With suitable examples, explain protection and deprotection of 4
(i) – OH group
(ii) – NH_2 group.
- (c) Discuss any two methods of formation of five membered rings with 5
suitable examples.
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