Total No. of Questions : 6]

SEAT No. :

P1523

[Total No. of Pages : 5

[5225]-41
M.Sc.
DRUG CHEMISTRY
CH - 461 : Synthetic Methods in Organic Chemistry
(2008 Pattern) (Old) (Semester - IV)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Answers to the two sections should be written in separate answer books.***
3) ***Figures to the right indicate full marks.***

SECTION - I

Q1) a) Explain any three of the following: **[9]**

i) CBZ (Benzyloxy carbonyl) group is preffered over acetylation for amino group protection in peptide synthesis.

ii) THP protection is stable under alkaline conditions but can be removed under acidic conditions.

iii) α - Pinene derived organoboranes can be used to prepare optically active alcohols.

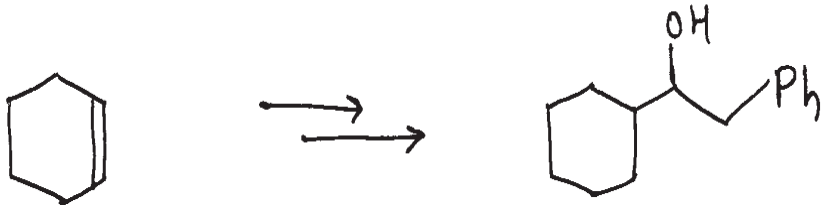
iv) Synthesis of macrocyclic rings can be achieved using organo nickel compounds.

v) Role of palladium complex in the Heck reaction cycle.

b) Complete any two of the following transformations. Justify your answer. **[6]**

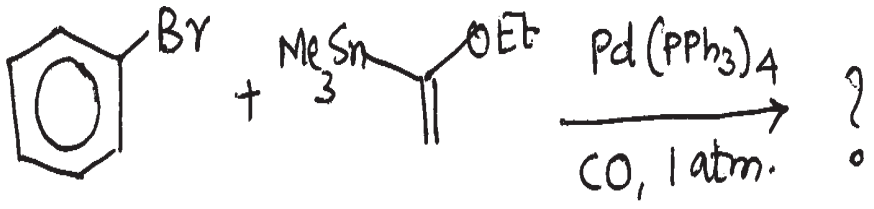
i) 

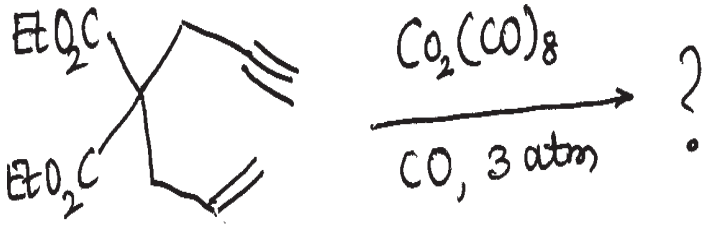
ii) 

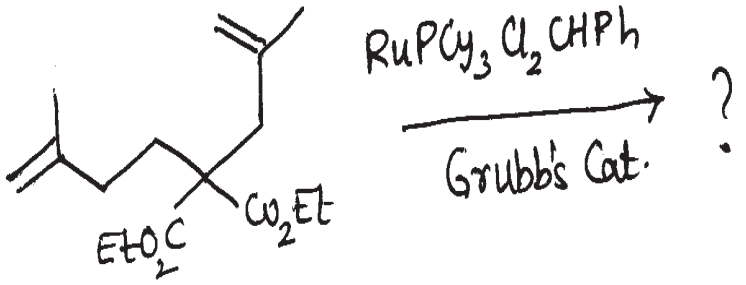
iii) 

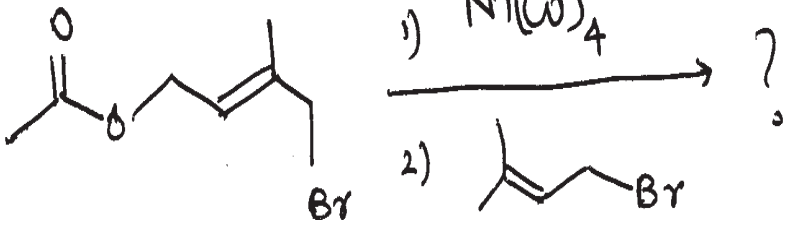
P.T.O.

Q2) a) Predict the product, explain the mechanism of the reaction. (Any Three): **[9]**

i) 

ii) 

iii) 

iv) 

b) Discuss <u>any two</u> of the following. **[6]**

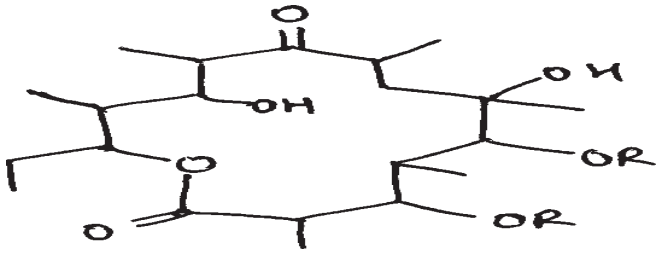
i) Use of acetylene in organic synthesis.

ii) Enamines are preferred for monoalkylation at the α-position of aldehydes.

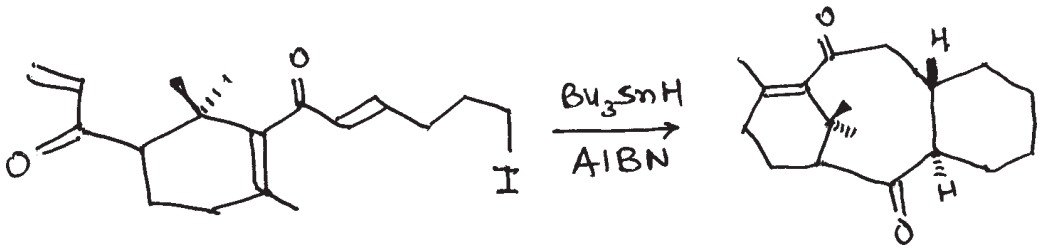
iii) Role of $Na_2Fe(Co)_4$ in organic synthesis.

Q3) Answer any two of the following: **[10]**

a) Explain the biomimetic approach to reterosynthesis of the following.

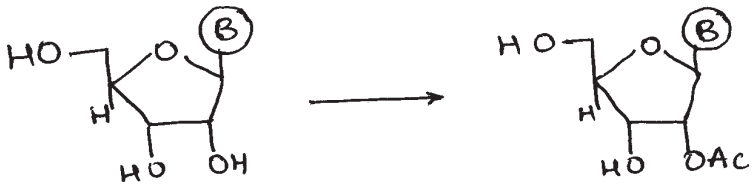


b) Explain how Domino (Tandem) reaction are useful than stepwise reaction. Write the steps involved in the following reaction.

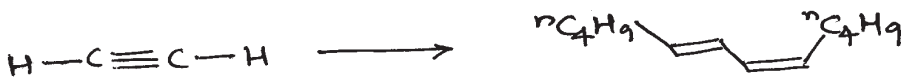


c) Carry out the following conversion (any two).

i)



ii)

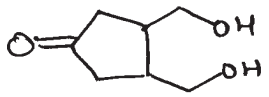


iii)

SECTION - II

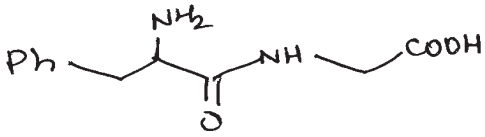
Q4) Using retrosynthetic analysis, Suggest a suitable method to synthesize any three of the following. **[12]**

a)

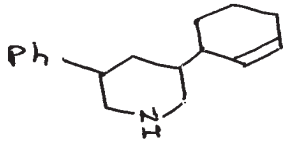


b)

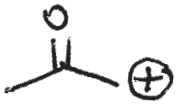
c)

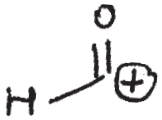


d)



Q5) a) Give one reaction with reagent, for each synthon given below. **[6]**

i) 

ii) 

b) Employing umpolung carry out the following transformation (any two).**[6]**

i) 

ii) 

iii) 

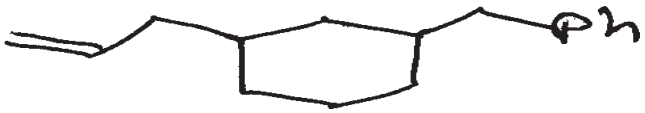
Q6) a) Write a brief account on <u>any one</u>. **[4]**

i) Lonic liquids in Organic Synthesis.

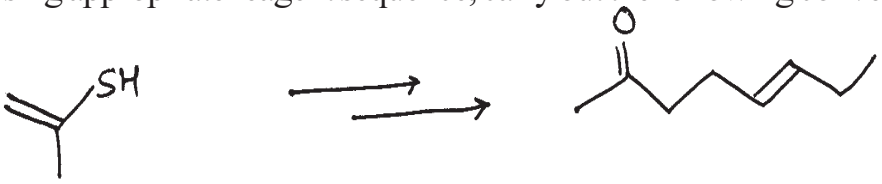
ii) Principles of Green Chemistry.

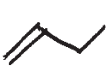
b) Answer <u>any four</u> of the following. **[12]**

i) How the following Compound can be prepared by enamine approach

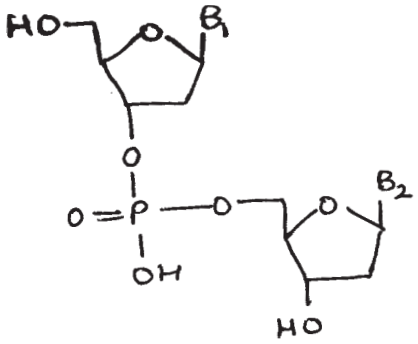


ii) Using appropriate reagent sequence, carry out the following conversion.



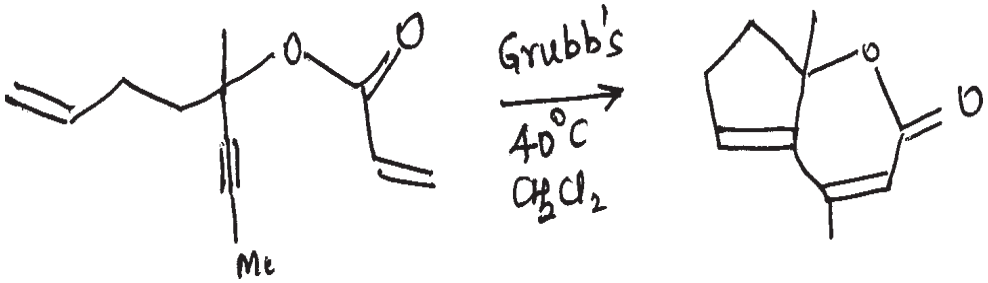
Reagents: S-BuLi, C_2H_5I ; Δ, 200°C ;  ; H_3O^+

iii) Discuss the steps involved in the synthesis of the following dinucleotide.



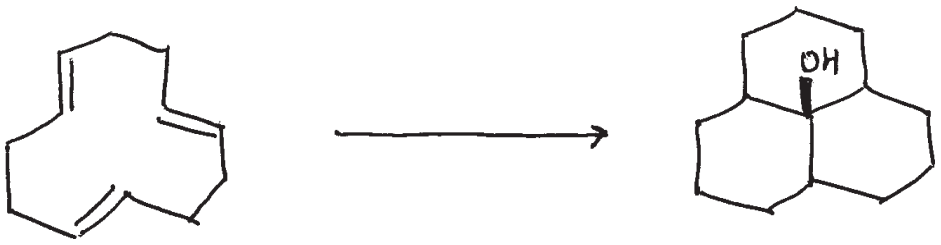
B_1 & B_2 are purine bases

iv)



Write the mechanism for the formation of the product in the above reaction.

v) Carry out the following conversion using organo borane chemistry.



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