GIET UNIVERSITY, GUNUPUR – 765022

RN19MSC008

Roll No: | | | | | | |

Total Number of Pages : 2 AR-18 M.SC

M.Sc 3rd SEMESTER REGULAR EXAMINATIONS, NOV/DEC 2019-20

Subject code: CHE-501

Subject: ORGANIC CHEMISTRY-III

Time: 3 Hours Max Marks: 80

The figures in the right hand margin indicate marks.

SECTION A

Q.1 Answer any four of the following: **[4 X4 =16]**

a What is salbutamol? How it is synthesized?

b Describe two different methods of construction of a six membered ring .

c Define the following terms using suitable examples (i) Disconnection approach (ii) Synthon (iii) Synthetic equivalent (iv) Functional group interconversions

d Write a brief note on solid state peptide synthesis.

e Discuss two methods of protection of alcohols and their deprotection protocols.

f What is Diels-Alder reaction? Giving one example discuss the stereospecificity of Diels-Alder reaction.

Or

2. Answer all questions from the following **[2 x 8 =16]**

a How 2,5-dimethylpyrrole can be synthesized using the method of Paal-Knorr synthesis?

b What is L-DOPA?

c Explain the term polydispersity index (PDI) of polymer.

d Write synthetic route, properties and uses of polyester.

e What is NBS and where it is used?

f What is sulfur ylide and how it is prepared?

g How -NH_2 can be converted to –NH*Boc*.

h Write down the retro synthetic analysis of a five membered heterocycles.

SECTION-B

3. Answer all Questions: **[16 x4 =64]**

a Discuss about different steps involved in the total synthesis of Longifolene. 16

OR

b Describe about following reactions with detail mechanistic explanation. 8 x 2

(i) Fischer-Indole synthesis (ii) Hantzsch Pyridine synthesis

4.

a What is Zeigler-Natta catalyst? Discuss detail mechanism of Zeigler-Natta polymerization. Discuss two important advantages of Zeigler-Natta polymerization over free radical polymerization. Differentiate between number average and weight average molecular weight of polymer. 16

OR

b Citing suitable examples explain the mechanism of different steps involved in the following polymerization reactions. 16

(i) Free radical polymerization

(ii) Cationic polymerization

(iii) Anionic polymerization.

(iv) What do you mean by living polymer?

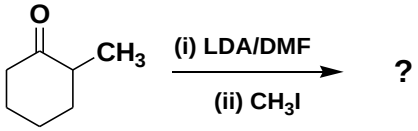
5.

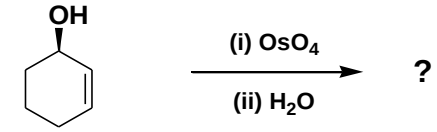
a With proper mechanism describe at least one use of the following reagents in organic transformations. 2 x 8

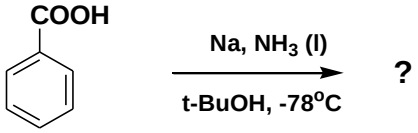
(i)Me_2CuLi (ii) $LiAlH_4$ (iii) CH_2N_2 (iv) Raney Ni (v) PCC (vi) SeO_2 (vii) IBX (viii)O_3

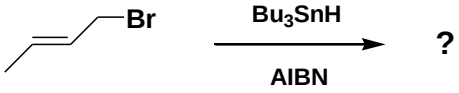
OR

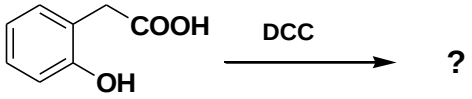
b Complete the following reactions. Also discuss the probable mechanism and stereoselectivity (if any) of the reaction. 2 x 8

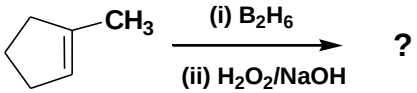
(i) 

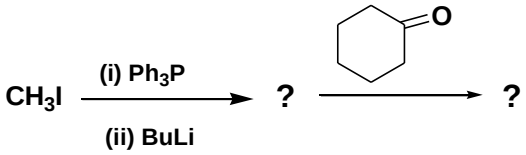
(ii) 

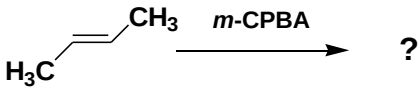
(iii) 

(iv) 

(v) 

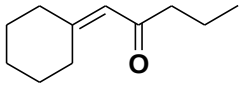
(vi) 

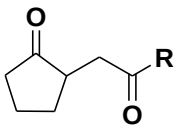
(vii) 

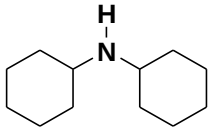
(viii) 

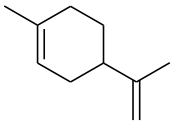
6.

a Using disconnection approach outline convenient synthesis of the following target molecules. 4 x 4

(i) 

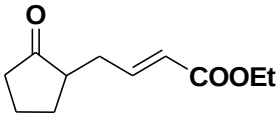
(ii) 

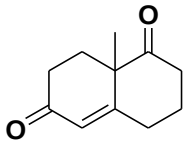
(iii) 

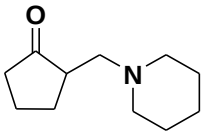
(iv) 

OR

b Using retrosynthetic approach, suggest suitable synthesis of the following compounds from simple starting material. 4 x 4

(i) 

(ii) 

(iii) 

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