2024
M.Sc.
Second Semester
CORE – 07
CHEMISTRY
Course Code: MCHC 2.31
(Organic Chemistry - III)

Total Mark: 70 *Pass Mark: 28*
Time: 3 hours

Answer five *questions, taking* one *from each unit.*

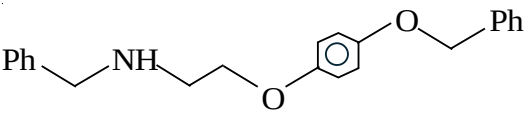
UNIT–I

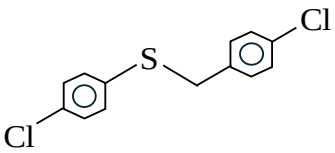
1. (a) Discuss the preparation, application and reaction mechanism of the following: 7×2=14
   (i) Dess-Martin periodinane (ii) Gliman's reagent

2. (a) Write the structure and give any two applications of the following reagents: 3½×4=14
   (i) Tebbe's reagent (ii) Mosher's reagent
   (iii) Lithium disopropylamide (iv) Fetizon's reagent

UNIT–II

3. (a) Using disconnection approaches outline the synthesis of the following target molecules. Justify your choice of disconnections and indicate the synthon and synthetic equivalents involved. 4×2=8

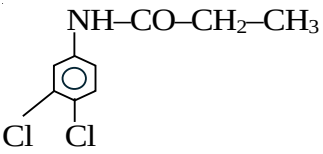
(i) 

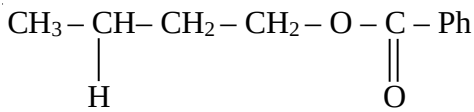
(ii) 

(b) Explain the importance of the order of events in organic synthesis with suitable examples. 6

4. (a) Write the disconnection approach with suitable examples. 4

(b) Write the synthesis and analysis of the following compounds. 4×2=8

(i) 

(ii) 

(c) Write a short note on reversal of polarity. 2

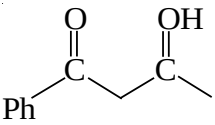
UNIT–III

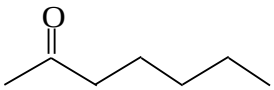
5. (a) Explain the following reactions: 3+4=7

(i) Diels-Alder reaction

(ii) Michel reaction

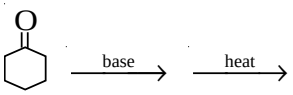
(b) Write synthesis and retrosynthesis of the following compounds: 3+4=7

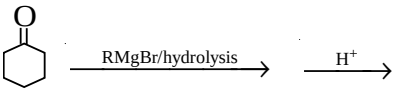
(i) 

(ii) 

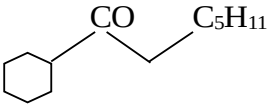
6. (a) Complete the following reactions: 2+3+3=8

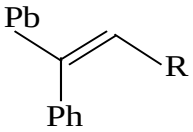
(i) $2CH_3 - CH_2 - CH_2 - CHO \xrightarrow{base}$

(ii) 2 

(iii) 

(b) Write synthesis and retrosynthesis of the following compounds: 3×2=6

(i) 

(ii) 

UNIT–IV

7. (a) Write the protection and deprotection of amino group. 4
   (b) Discuss synthesis and retrosynthesis of taxol. 10

8. Discuss synthesis and retrosynthesis of pinene. 14

UNIT–V

9. (a) Discuss the following reactions with their mechanism: 4+5+5=14
   (i) Biginelli reaction
   (ii) Hantzsch reaction
   (iii) Passerini reaction

10. (a) Explain sharpless asymmetric epoxidation and asymmetric dihydroxylation reaction. 8
   (b) Complete the following reactions: 1×4+2=6

   (i) $R - COOH + R - OH \xrightarrow{H+}$

   (ii) $R - CHO \xrightarrow{[O]}$

   (iii) $CH_3 - CH = CH_2 \xrightarrow{HOCl}$

   (iv) $R - COOH \xrightarrow{NaOH + CaO/heat}$

   (v) $R - COOH \xrightarrow[heat]{Ca(OH)_2} \xrightarrow{Distillation}$