

2023/TDC(CBCS)/ODD/SEM/  
CHMHCC-302T/262

TDC (CBCS) Odd Semester Exam., 2023

CHEMISTRY  
( Honours )  
( 3rd Semester )

Course No. : CHMHCC-302T

( Organic Chemistry )

Full Marks : 50

Pass Marks : 20

Time : 3 hours

*The figures in the margin indicate full marks  
for the questions*

SECTION—A

Answer *ten* questions, taking any *two* from each

Unit :

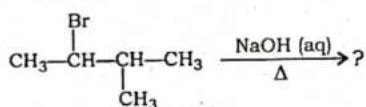
2×10=20

UNIT—I

1. Allyl chloride generally obeys  $S_N1$  reaction during nucleophilic substitution reaction. Explain with proper reason.

( 2 )

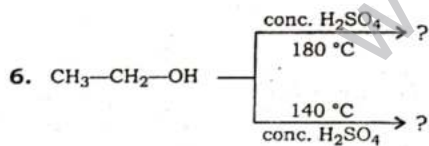
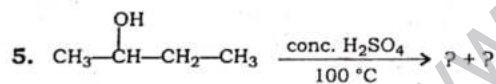
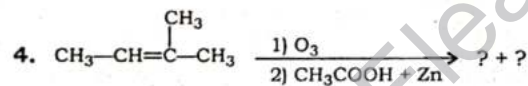
2. Write the product of the reaction given below and justify it :



3. Explain why racemization takes place in  $S_N1$  reaction.

UNIT—II

Write the products of the following reactions (any two) :



24J/261

( Continued )

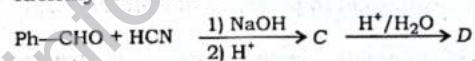
( 3 )

UNIT—III

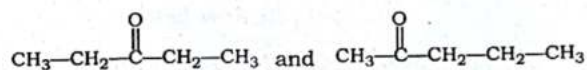
7. Identify A and B :



8. Identify C and D :



9. Which one of the following compounds will react with  $I_2$  in presence of NaOH? Also write the product of the reactions.

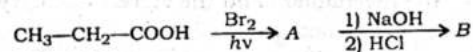


UNIT—IV

10. What happens when malonic acid is treated with alkaline permanganate?

11. What happens when oxalic acid is heated with conc.  $\text{H}_2\text{SO}_4$ ?

12. Identify A and B :



24J/261

( Turn Over )

( 4 )

UNIT—V

13. Describe briefly the nature of the bond between carbon and magnesium in Grignard reagent.
14. What happens when ethane thiol is treated with acetic acid in presence of conc.  $H_2SO_4$ ?
15. What happens when propyne is treated first with  $CH_3MgBr$  and followed by ethyl bromide?

SECTION—B

Answer five questions, taking one from each Unit :

6×5=30

UNIT—I

16. (a) Benzyl bromide is more reactive than cyclohexylmethyl bromide towards  $NaOH$  (aq) under the conditions of  $S_N1$  process. Provide explanation. 3
- (b) With the help of suitable example, write the mechanism and the stereochemistry of  $S_N2$  reactions. 3

24J/261

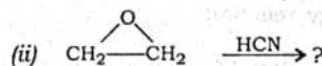
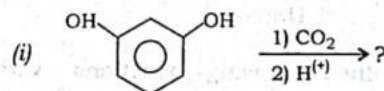
( Continued )

( 5 )

17. (a) How the rate expression for  $S_N1$  and  $S_N2$  reactions differ? 2
- (b) With suitable example, describe the mechanism of  $S_Ni$  reaction. 2
- (c)  $CH_3-CH=CH-Cl$  is very unreactive towards nucleophile. Explain. 2

UNIT—II

18. (a) What happens when diethyl ether is treated with  $BF_3$ ? 2
- (b) How will you prepare picric acid from phenol? 2
- (c) What happens when glycol is treated with acidic potassium permanganate? 2
19. Write the product and the mechanism of the reactions given below : 3+3=6



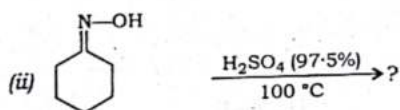
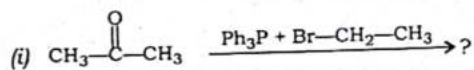
24J/261

( Turn Over )

( 6 )

UNIT—III

20. Complete the following reactions and also write the mechanisms : 3×2=6



21. Explain the following reactions with mechanism : 3×2=6

- (a) Baeyer-Villiger oxidation
- (b) Perkin reaction
- (c) Clemmensen reduction

UNIT—IV

22. Describe the following reactions with mechanism : 3×2=6

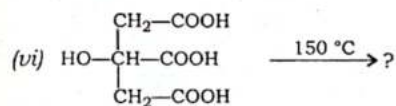
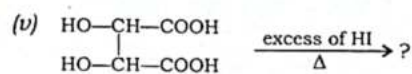
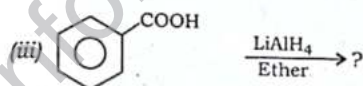
- (a) Reformatsky reaction
- (b) Hofmann bromamide degradation

24J/261

( Continued )

( 7 )

23. Complete the following reactions : 1×6=6



UNIT—V

24. Starting from ethyl acetoacetate, obtain—

- (a) 3-methylpentan-2-one;
- (b) propanoic acid. 3×2=6

24J/261

( Turn Over )



25. Starting from diethyl malonate, obtain—

(a) crotonic acid;

(b) cyclopropane.

3×2=6

\*\*\*

Elearning Info  
www.elearninginfo.in