

# ORGANIC CHEMISTRY -I

## 1. ALKYL HALIDES (R-X)

### PREVIOUS EAMCET BITS

1. Consider the following reaction.  $C_2H_5Cl + AgCN \xrightarrow{EtOH/H_2O} X (major)$  which one of the following statements is true for X (2009 E)

- I) It gives propionic acid on hydrolysis
- II) It has an ester function
- III) It has a nitrogen linked to ethyl carbon
- IV) It has a cyanide group

1) IV                  2) III                  3) II                  4) I

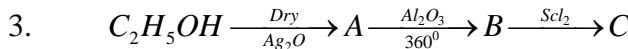
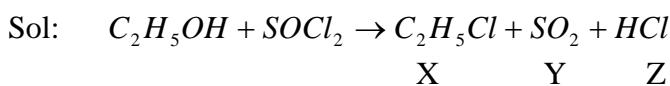
Ans : 2



2.  $C_2H_5Cl + SOCl_2 \xrightarrow{\text{Pyridine}} X + Y + Z$ . In this reaction X, Y and Z respectively are (2008 M)

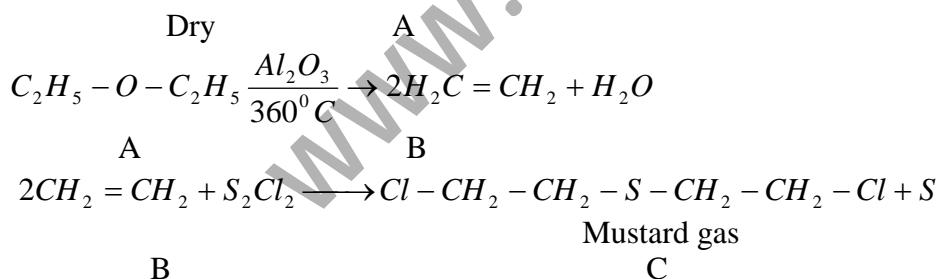
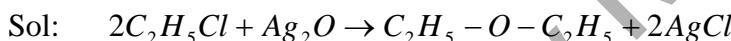
- 1)  $C_2H_4Cl_2$ ,  $SO_2$ ,  $HCl$
- 2)  $C_2H_5Cl$ ,  $SO_2$ ,  $HCl$
- 3)  $C_2H_5Cl$ ,  $SOCl$ ,  $HCl$
- 4)  $C_2H_4$ ,  $SO_2$ ,  $Cl_2$

Ans : 2



- In the above sequence of reaction identify 'C' (2007 M)
- 1) Chloretone
  - 2) Chloropicrin
  - 3) Mustard gas
  - 4) Lewisite gas

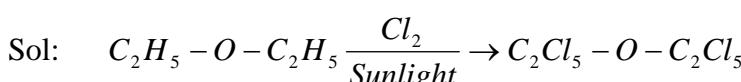
Ans : 3



4. In which of the following reaction ethyl chloride is not formed (2006 M)

- 1)  $C_2H_5 - O - C_2H_5 + Pcl_5 \xrightarrow{\Delta}$
- 2)  $C_2H_5 - O - C_2H_5 + CH_3COCl \xrightarrow{AlCl_3}$
- 3)  $C_2H_5 - O - C_2H_5 + Cl_2 \xrightarrow{h\nu}$
- 4)  $C_2H_5OH + Pcl_3 \longrightarrow$

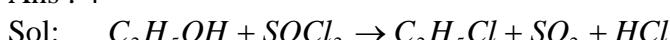
Ans : 3



5. Hydrogen chloride and  $SO_2$  are the side products in the reaction of ethanol with thionyl chloride. Which of the following is the main product in this reaction (2005 M)

- 1)  $C_2H_5 - O - C_2H_5$
- 2)  $C_2H_6$
- 3)  $CH_3Cl$
- 4)  $C_2H_5Cl$

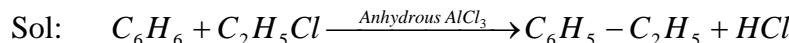
Ans : 4



6. The reagent used for converting benzene to ethyl benzene is (2004 M)

  - 1)  $\text{C}_2\text{H}_5\text{Cl}$ , anhydrous  $\text{AlCl}_3$
  - 2)  $\text{C}_2\text{H}_5\text{Cl}$ , aqueous  $\text{AlCl}_3$
  - 3)  $\text{C}_2\text{H}_5\text{OH}$ , anhydrous  $\text{AlCl}_3$
  - 4)  $\text{C}_2\text{H}_5\text{Cl}$ ,  $\text{SOCl}_2$

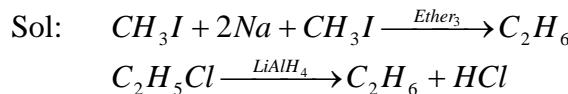
Ans : 1



7. Wurtz reaction of methyl Iodide yield an organic compound X. Which one of the following reaction also yield X ? **(2003 M)**

  - 1)  $C_2H_5Cl + Mg \xrightarrow{\text{Dry ether}}$
  - 2)  $C_2H_5Cl + LiAlH_4 \xrightarrow{\Delta}$
  - 3)  $C_2H_5Cl + C_2H_5ONa \longrightarrow$
  - 4)  $CHCl_3 \xrightarrow[\Delta]{\text{Ag Powder}}$

Ans : 2



8. Heating chloroethane with ---- yields a product containing isocyanide group.  
**(2002M)**

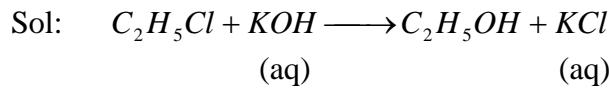
1) AgCN      2) KCN      3) HCN      4)  $\text{HNO}_3$

Ans : 1



9. What is X in the following reaction  $C_2H_5Cl + X \rightarrow C_2H_5OH + KCl$  (2001M)  
1)  $KHCO_3$       2) alcoholic KOH      3) aqueous KOH      4)  $K_2CO_3$

Ans : 3



10. Chloral hydrate is dissolved in NaOH solution and distilled. What are the compounds obtained  
**(2000 M)**



- <sup>11</sup> In light of the following section 11 is not considered.

In which of the following reactions, chlorine acts as an oxidant?

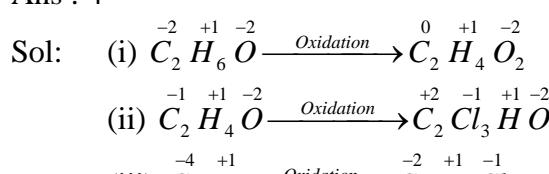
$$(ii) CH_3CHO + Cl \rightarrow CCl_3CHO + HCl$$

$$(iii) CH_3 + Cl \xrightarrow{h\nu} CHCl + HCl$$

The correct answer is

- The correct answer is (1) (i) only      (2) (ii) only      (3) (i) and (iii)      (4) (i), (ii) and (iii)

Ans : 4



- $$1^2 \quad CaOCl_2 + H_2O \rightarrow Ca(OH)_2 + X$$

$$X + CH_2CHO \rightarrow Y$$

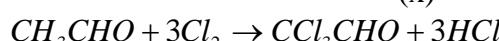
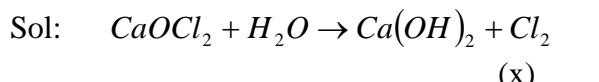
$$Y + Ca(OH)_2 \rightarrow CHCl$$

What is 'V'?

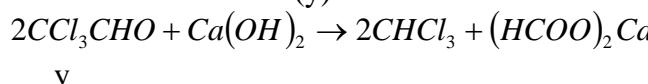
(2007 F)

- 1)  $\text{CH}_3\text{CH}(\text{OH})_2$       2)  $\text{CH}_2\text{Cl}_2$       3)  $\text{CCl}_3\text{CHO}$       4)  $\text{CCl}_3\text{COCH}_3$

Ans : 3



(y)



y

13. Match the following columns.

(2007 E)

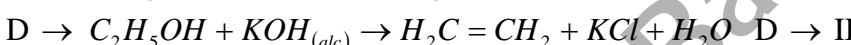
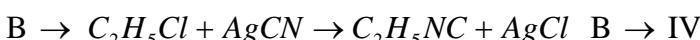
Column I(Reactants)

- (A)  $\text{C}_2\text{H}_5\text{Cl}$ , moist  $\text{Ag}_2\text{O}$   
 (B)  $\text{C}_2\text{H}_5\text{Cl}$ , aqueous ethanolic  $\text{AgCN}$   
 (C)  $\text{C}_2\text{H}_5\text{Cl}$ , aqueous ethanolic  $\text{AgNO}_2$   
 (D)  $\text{C}_2\text{H}_5\text{Cl}$ , ethanolic KOH

Column II (Products)

- (1)  $\text{CH}_3\text{CH}_2\text{ONO}$   
 (2)  $\text{C}_2\text{H}_4$   
 (3)  $\text{C}_2\text{H}_5\text{-H}$   
 (4)  $\text{CH}_3\text{CH}_2\text{NC}$   
 (5)  $\text{C}_2\text{H}_6$

Ans : 3



14. Which of the following is added to chloroform to slow down its aerial oxidation in presence of light  
(2006 E)

- 1) Carbonyl chloride 2) Ethyl alcohol 3) Sodium hydroxide 4) Nitric acid

Ans : 2

Sol: 1% ethyl alcohol is added to retard oxidation of chloroform.

15. The correct structure of 4-bromo-3-methylbut-1-ene is  
(2004 E)

- 1)  $\text{Br}-\text{CH}=\text{C}(\text{CH}_3)_2$   
 2)  $\text{CH}_2=\text{CH}-\text{CH}(\text{CH}_3)-\text{CH}_2\text{Br}$   
 3)  $\text{CH}_2=\text{C}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{Br}$   
 4)  $\text{CH}_3-\text{C}(\text{CH}_3)=\text{CHCH}_2-\text{Br}$

Ans : 2

Sol: 4-bromo-2-methyl-but-1-ene

Structure is  $\text{H}_2\text{C} = \text{CH}-\text{CH}(\text{CH}_3)-\text{CH}_2\text{Br}$ .

16. The chemical formula of tear gas is  
(2004 E)

- 1)  $\text{COCl}_2$       2)  $\text{CO}_2$       3)  $\text{Cl}_2$       4)  $\text{CCl}_3\text{NO}_2$

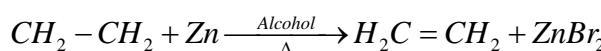
Ans : 4

Sol: The chemical formula of tear gas is  $\text{CCl}_3\text{NO}_2$ .

17. The metal used fro the debromination reaction of 1,2-dibromoethane, is  
(2004 E)

- 1) Na      2) Zn      3) Mg      4) Li

Ans : 2

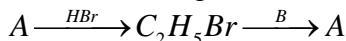


Sol: |      |  
 Br      Br

18. Consider the following reactions

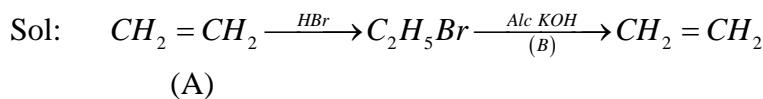


22. In the following reaction, A and B respectively are (2002 E)



- 1)  $C_2H_4$  and alcoholic KOH/Δ  
2)  $C_2H_5Cl$  and aqueous KOH/Δ  
3)  $C_2H_5OH$  and aqueous KOH/Δ  
4)  $C_2H_2$  and  $PBr_3$

Ans : 1



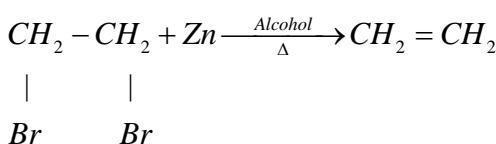
23. The reaction conditions used for converting 1,2-dibromoethane to ethylene are

(2002 E)

- 1) Zn, alcohol, Δ    2) KOH, alcohol, Δ    3) KOH, water, Δ    4) Na, alcohol, Δ

Ans : 1

Sol:



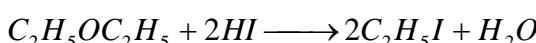
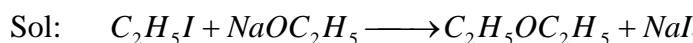
24. What is Y in the following reaction ?

(2007 E)



- 1)  $C_2H_6$     2)  $C_2H_5I$     3)  $C_2H_4$     4)  $C_2H_5OC_2H_5$

Ans : 2

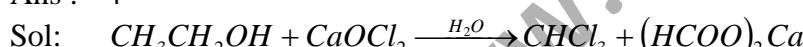


25. Which of the following reacts with ethanol to form chloroform

(2000E)

- 1)  $SOCl_2$     2)  $PCl_5$     3)  $HCl$     4)  $CaOCl_2 + H_2O$

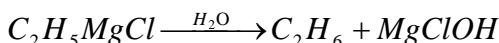
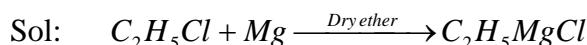
Ans : 4



26. Chloroethane reacts with magnesium in dry ether to form X. When X is hydrolysed a carbon compound Y and Z are formed. Which of the following is Y? (2000E)

- 1)  $C_2H_4$     2)  $C_2H_2$     3)  $C_2H_6$     4)  $C_6H_6$

Ans : 3



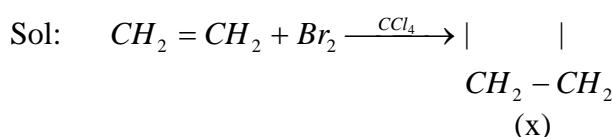
- (x)    (y)    (z)

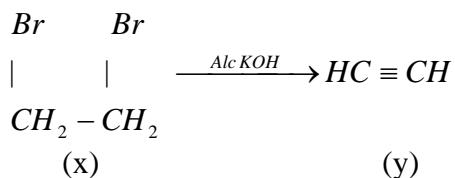
27. Ethylene reacted with bromine in  $CCl_4$  to form X. X is treated with alcoholic KOH to give Y. X and Y are respectively.

(2000E)

- 1)  $BrCH_2-CH_2Br$  and  $C_2H_2$     2)  $C_2H_5Br$  and  $C_2H_4$   
3)  $C_2H_5Br$  and  $C_6H_6$     4)  $C_2H_3Br_3$  and  $C_2H_4$

Ans : 1





28. Chloroethane reacts with Y to form NaCl and Z. One mole of Z reacts with two moles of HI to form water and iodo ethane. Which of the following is Y? (2000E)
- 1)  $\text{CH}_3\text{COOH}$       2)  $\text{CH}_3\text{CHO}$       3)  $\text{C}_2\text{H}_5\text{OC}_2\text{H}_5$       4)  $\text{C}_2\text{H}_5\text{ONa}$

Ans :4

