




CHEMISTRY

BOOKS - FULL MARKS CHEMISTRY (TAMIL ENGLISH)

HALOALKANES AND HALOARENES

Textual Evaluation Solved Multiple Choice Questions

1. The IUPAC name of  is

- A. 2-Bromopent - 3 ene
- B. 4-Bromopent 2 ene
- C. 2-Bromopent -4 ene
- D. 4-Bromopent 1-ene

Answer: B



2. Of the following compounds, which has the highest boiling point?

A. n-Butyl chloride

B. Isobutyl chloride

C. t-Butyl chloride

D. n-propyl chloride

Answer: A



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3. Arrange the following compounds in increasing order of their density.

(A) CCl_4 (B) $CHCl_3$ (C) CH_2Cl_2 (D) CH_3Cl

A. D lt C lt B lt A

B. C gt B gt A gt D

C. A lt B lt C lt D

D. C gt A gt B gt D

Answer: A

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4. With respect to the position of Cl in the compound $CH_3 - CH = CH - CH_2 - Cl$, it is classified as

A. Vinyl

B. Allyl

C. Secondary

D. Aralkyl

Answer: B

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5. What should be the correct IUPAC name of diethyl chloromethane?

- A. 3-Chloropentane
- B. 1-Chloropentane
- C. 1-Chloro-1, 1, diethylmethane
- D. 1-Chloro-1-ethylpropane

Answer: A




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6. C-X bond is strongest in

- A. Chloromethane
- B. Iodomethane
- C. Bromomethane
- D. Fluoromethane

Answer: D

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7. In the reaction  $X + N_2$, X is

A. 

B. 

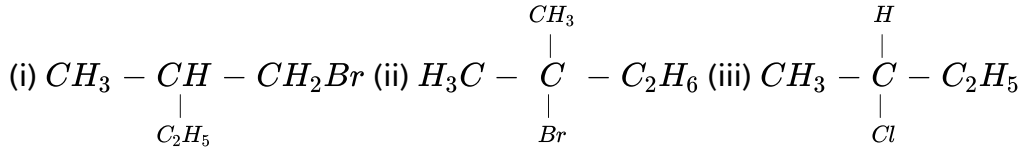
C. 

D. 

Answer: B

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8. Which of the following compounds will give racemic mixture on nucleophilic substitution by OH ion?



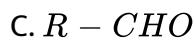
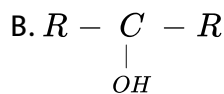
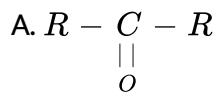
- A. (i)
 B. (ii) and (iii)
 C. (iii)
 D. (i) and (ii)

Answer: C



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9. The treatment of ethyl formate with excess of $RMgX$ gives



Answer: C

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10. Benzene reacts with Cl_2 in the presence of $FeCl_3$ and in absence of sunlight to form

- A. Chlorobenzene
- B. Benzyl chloride
- C. Benzal chloride
- D. Benzene hexachloride

Answer: A

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11. The name of $C_2F_4Cl_2$ is

A. Freon - 112

B. Freon - 113

C. Freon -114

D. Freon - 115

Answer: C

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12. Which of the following reagent is helpful to differentiate ethylene dichloride and ethylidene chloride?

A. Zn/methanol

B. KOH/ ethanol

C. Aqueous KOH

D. $ZnCl_2$ / *conc. HCl*

Answer: C

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13. Match the compounds given in Column I with suitable items given in Column II.



A. $A \rightarrow 2, B \rightarrow 4, C \rightarrow 1, D \rightarrow 3$

B. $A \rightarrow 3, B \rightarrow 2, C \rightarrow 4, D \rightarrow 1$

C. $A \rightarrow 1, B \rightarrow 2, C \rightarrow 3, D \rightarrow 4$

D. $A \rightarrow 3, B \rightarrow 1, C \rightarrow 4, D \rightarrow 2$

Answer: D

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14. Assertion: In monohaloarenes, electrophilic substitution occurs at ortho and para positions.

Reason: Halogen atom is a ring deactivator.

- A. If both assertion and reason are true and reason is the correct explanation of assertion.
- B. If both assertion and reason are true but reason is not the correct explanation of assertion.
- C. If assertion is true but reason is false.
- D. If both assertion and reason are false.

Answer: B



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15. Consider the reaction,

$$CH_3CH_2CH_2Br + NaCN \rightarrow CH_3CH_2CH_2CN + NaBr$$

This reaction will be the fastest in

- A. ethanol
- B. methanol
- C. DMF(N, N'-dimethyl formamide)

D. water

Answer: C



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16. Freon-12 is manufactured from tetrachloromethane by

A. Wurtz reaction

B. Swarts reaction

C. Haloform reaction

D. Gattermann reaction

Answer: B



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17. The most easily hydrolysed molecule under S_{N1} condition is

- A. allyl chloride
- B. ethyl chloride
- C. isopropyl chloride
- D. benzyl chloride

Answer: D



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18. The carbocation formed in S_{N1} reaction of alkyl halide in the slow step is

- A. sp^3 hybridised
- B. sp^2 hybridised
- C. sp hybridised

D. none of these

Answer: B



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19. The major products obtained when chlorobenzene is nitrated with HNO_3 and conc. H_2SO_4

A. 1-chloro-4-nitrobenzene

B. 1-chloro-2-nitrobenzene

C. 1-chloro-3-nitrobenzene

D. 1-chloro-1-nitrobenzene

Answer: A



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20. Which one of the following is most reactive towards nucleophilic substitution reaction ?

A. 

B. 

C. 

D. 

Answer: D

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21. Ethylidene chloride on treatment with aqueous KOH gives

A. acetaldehyde

B. ethylene glycol

C. formaldehyde

D. glyoxal

Answer: A



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22. The raw material for Rasching process is

A. chlorobenzene

B. phenol

C. benzene

D. anisole

Answer: C



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23. Chloroform reacts with nitric acid to produce

A. nitro-toluene

B. nitro-glycerine

C. chloropicrin

D. chloropicric acid

Answer: C

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24. Acetone $\xrightarrow[\text{(ii) } H_2O / H^{-1}]{\text{(i) } CH_3MgI}$ X. X is

A. 2-propanol

B. 2-methyl-2-propanol

C. 1-propanol

D. acetanol

Answer: B

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25. Silver propionate when refluxed with Bromine in carbon tetrachloride give

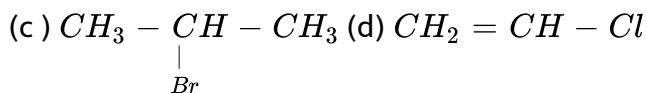
- A. propionic acid
- B. chloroethane
- C. bromoethane
- D. chloropropane

Answer: C

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Textual Evaluation Solved Short Answer Questions

1. Classify the following compounds in the form of alkyl. allylic. vinyl. benzylic halides:



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2. Why chlorination of methane is not possible in dark?

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3. How will you prepare n-propyl iodide from n-propyl bromide?

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4. Which alkyl halide from the following pair is (i) chiral (ii) undergoes faster S_N2 reaction?



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5. How does chlorobenzene react with sodium in the presence of ether?

What is the name of the reaction ?

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6. Give reasons for polarity of C-X bond in haloalkanes.

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7. Why is it necessary to avoid even traces of moisture during the use of Grignard reagent?

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8. What happens when acetyl chloride is treated with excess of CH_3MgI ?

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9. Arrange the following alkyl halides in increasing order of bond enthalpy of RX: CH_3Br , CH_3F , CH_3Cl , CH_3I

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10. What happens when chloroform reacts with oxygen in the presence of sunlight?

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11. Write down the possible isomers of $C_5H_{11}Br$ and give their IUPAC and common names.

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12. Mention any three methods of preparation of haloalkanes from alcohols.

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13. Compare S_{N1} and S_{N2} reaction mechanisms.

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14. Reagents and the conditions used in the reactions are given below.

Complete the table by writing down the product and the name of the reaction.



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15. Discuss the aromatic nucleophilic substitution reactions of chlorobenzene.

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16. Account for the following (i) t-butyl chloride reacts with aqueous KOH by S_N1 mechanism while n-butyl chloride reacts with S_N2 mechanism.

(ii) p-dichlorobenzene has higher melting point than those of o-and m - dichlorobenzene.

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17. In an experiment ethyl iodide in ether is allowed to stand over magnesium pieces. Magnesium dissolves and product is formed

(a) Name the product and write the equation for the reaction.

(b) Why all the reagents used in the reaction should be dry? Explain.

(c) How is acetone prepared from the product obtained in the experiment?

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18. Write a chemical reaction useful to prepare the following:

(i) Freon-12 from carbon tetrachloride.

(ii) Carbon tetrachloride from carbon disulphide.

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19. What are Freons? Discuss their uses and environmental effects.

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20. Predict the products when bromoethane is treated with the following:

(i) KNO_2 (ii) $AgNO_2$

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21. Explain the mechanism of S_{N1} reaction by highlighting the stereochemistry behind it.

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22. Write short notes on the the following :

(i) Raschig process (ii) Dows Process (ii) Darzens process

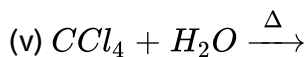
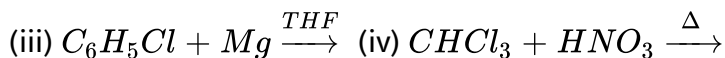
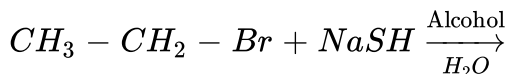
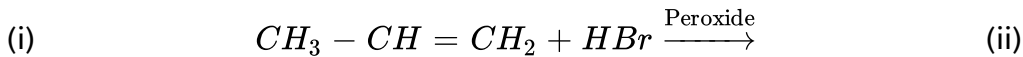
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23. Starting from CH_3MgI . How will you prepare the following ?

(i) Acetic acid (ii) Acetone (iii) Ethyl acetate (iv) Isopropyl alcohol (v) Methyl cyanide

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24. Complete the following reactions:



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25. Explain the preparation of the following compounds:

(i) DDT (ii) Chloroform (iii) Biphenyl (iv) Chloropicrin (v) Freon-12

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26. An organic compound (A) with molecular formula C_2H_5Cl reacts with KOH gives compounds (B) and with alcoholic KOH gives compound (C). Identify (A), (B) and (C)

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27. Simplest alkene (A) reacts with HCl to form compound (B). Compound (B) reacts with ammonia to form compound (C) of molecular formula C_2H_7N . Compound (C) undergoes carbylamine test. Identify (A), (B), and (C).

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28. A hydrocarbon C_3H_6 (A) reacts with HBr to form compound (B). Compound (B) reacts with aqueous potassium hydroxide to give (C) of molecular formula C_3H_8O . What are (A) (B) and (C). Explain the reactions.

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29. Two isomers (A) and (B) have the same molecular formula $C_2H_4Cl_2$. Compound (A) reacts with aqueous KOH, gives compound (C) of molecular formula C_2H_4O . Compound (B) reacts with aqueous KOH. gives compound (D) of molecular formula $C_2H_6O_2$. Identify (A), (B), (C) and (D).

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Evaluate Yourself

1. Write the IUPAC name of the following:



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2. Write the structure of the following compounds:

(i) 1-Bromo-4-ethylcyclo hexane (ii) 1,4-Dichlorobut-2-ene

(iii) 2 Chloro-3- methyl pentane

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3. Write all possible chain isomers with molecular formula $C_5H_{11}Cl$.

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4. neo-pentyl bromide undergoes nucleophilic substitution reactions very slowly. Justify.

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5. Why Grignard reagent should be prepared in anhydrous condition?

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6. Haloalkanes undergo nucleophilic substitution reaction whereas haloarenes undergo electrophilic substitution reaction. Comment.

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7. Chloroform is kept with a little ethyl alcohol in a dark coloured bottle. Why?

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8. What is the IUPAC name of the insecticide DDT? Why is their use banned in most of the countries?

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Additional Questions Solved Choose The Correct Answer

1. Which of the following is an example for polyhalo compounds?

- A. Vinyl iodide
- B. Chlorobenzene
- C. Allyl chloride
- D. Chloroform

Answer: D



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2. Which of the following is a secondary haloalkane'?

- A. Bromoethane
- B. 2-Chloropropane

C. 2-Iodo-2-methylpropane

D. 1-Chloropropane

Answer: B

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3. How many isomers are possible for the formula C_4H_9Cl ?

A. 3

B. 2

C. 4

D. 5

Answer: C

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4. How many isomers are possible for the formula $C_5H_{11}Br$?

A. 11

B. 8

C. 4

D. 5

Answer: B



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5. Which of the following is called Lucas reagent?

A. Conc. H_2SO_4 + Anhydrous $CuSO_4$

B. Conc.HCl + Anhydrous $ZnCl_2$

C. Dil.HCl + $AlCl_3$

D. Conc.HCl + Conc. HNO_3

Answer: B



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6. Which of the following mechanism is followed in the halogenation of alkanes in the presence of U-V light?

- A. Nucleophilic substitution
- B. Electrophilic addition
- C. Free radical substitution
- D. imination reaction

Answer: C



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7. The reactivity of alcohols with haloacid is

A. $3^\circ > 2^\circ > 1^\circ$

B. $1^\circ > 2^\circ > 3^\circ$

C. $2^\circ > 3^\circ > 1^\circ$

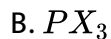
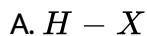
D. $3^\circ > 1^\circ > 2^\circ$

Answer: A



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8. Which of the following reagent is not used to convert alcohol to haloalkane?



Answer: C

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9. What is the name of the reaction in which bromoethane is converted to iodoethane by reacting with NaI in acetone?

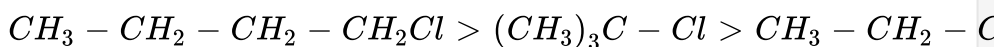
- A. Hunsdicker reaction
- B. Dow's process
- C. Finkelstein reaction
- D. Swarts reaction

Answer: C

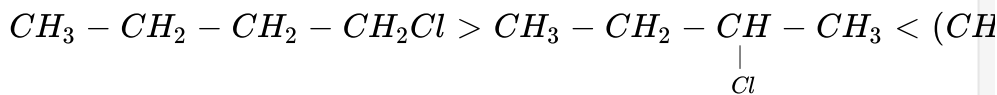
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10. Identify the correct order of boiling point of haloalkanes?

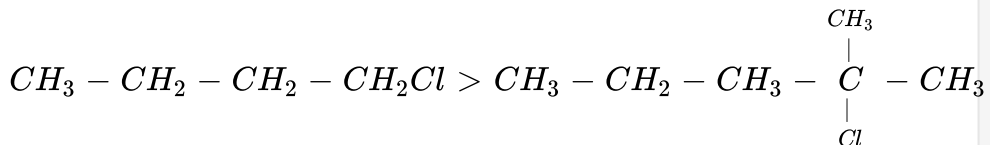
A.



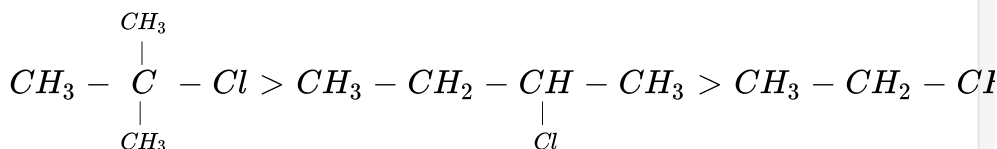
B.



C.



D.



Answer: C



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11. Which of the following pair functional groups represents ambident nucleophiles?



C. $-Br$ & $-Cl$

D. $-O$ & $-CHO$

Answer: B

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12. Which one following mechanism will be followed when Tertiary butyl chloride is treated with alcoholic KOH?

A. S_{N1} mechanism

B. E_1 mechanism

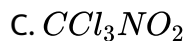
C. S_{N2} mechanism

D. E_2 mechanism

Answer: D

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13. Which one of the following is used for producing pesticides?

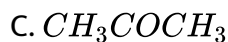
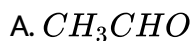


Answer: B



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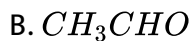
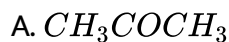
14. Which one of the following react with gringard reagent followed by hydrolysis will yield primary alcohol?



Answer: B

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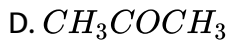
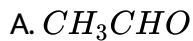
15. Which one of the following reacts with CH_3MgI followed by hydrolysis and gives isopropyl alcohol?



Answer: B

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16. Which one of the following reacts with CH_3MgI followed by hydrolysis to yield tert. butyl alcohol?



Answer: D

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17. Which one of the following reacts with CH_3MgI followed by acid hydrolysis to yield acetic acid?



Answer: D

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18. Which one of the following reagent react with methyl magnesium iodide followed by acid hydrolysis to give ethyl acetate?

- A. Chlorodimethyl ether
- B. Ethyl chloroformate
- C. Ethyl formate
- D. Acetaldehyde

Answer: B

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19. Which one of the following is used as fibre -swelling agent in textile processing ?

- A. Chlorobenzene

B. Chloroform

C. Chloral

D. Chloroethane

Answer: A

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20. Which one of the following is a gem-dihalide?

A. CH_3CHCl_2

B.
$$\begin{array}{cc} CH_2 & - & CH_2 \\ | & & | \\ Cl & & Cl \end{array}$$

C. $CH_3 - CH_2Cl$

D. $C_6H_4Cl_2$

Answer: A

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21. Which of the following reagent is used to distinguish gem-dihalides and vicinal dihalides?

A. Alcoholic KOH

B. Aqueous KOH

C. $FeCl_3 / Cl_2$

D. Ethanol

Answer: B



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22. Which one of the following is used in the conversion of ethylenedichloride to Acetylene?

A. Zn+ Methanol

B. KOH+Ethanol

C. Aqueous NaOH

D. Alcoholic KOH

Answer: B



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23. Which one of the following is used as a metal cleaning solvent?

A. Isopropylidene chloride

B. Methylene chloride

C. Chloroform

D. Iodoform

Answer: B



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24. Which one of the following is used as an insecticide and as a soil sterilising agent?

- A. Chloroform
- B. Chloral
- C. Chloropicrin
- D. Tetrachloromethane

Answer: C



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25. Which one of the following is used to test primary amines?

- A. Schiff's test
- B. Carbylamine test
- C. Dye test
- D. Silver mirror test

Answer: B



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26. Which one of the following is used as propellant for aerosols and foams?

A. Freons

B. Methylidene chloride


C. Chloral

D. Chloroform

Answer: A



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27.  The product X is :

A. 

B. 

C. 

D. 

Answer: B

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28. Which one of the following will undergo S reaction faster?

A. 

B. 

C. 

D. 

Answer: A

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29. Which one of the following compounds does not undergo nucleophilic substitution reactions at all?

- A. Ethyl bromide
- B. Vinyl chloride
- C. Benzyl chloride
- D. Isopropyl chloride

Answer: B

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Additional Questions Solved Fill In The Blanks

1. is used in the treatment of typhoid.

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2. is used in the treatment of malaria.

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3. is used as an anesthetic.

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4. is used for cleaning electronic equipments.

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5. The IUPAC name of $CH_2 = CH - CH_2Cl$ is

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6. The structure of Vinyl iodide is



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7. 2-iodo-2-methylpropane belongs to type.



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8. The structure of 2-iodo-2-methylpropane is



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9. $CH_3 - \begin{array}{c} CH_3 \\ | \\ C \\ | \\ CH_3 \end{array} - CH_2Br$, the IUPAC name of this compound is



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10. The IUPAC name of $CH_2 = CHCl$ is

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11. The IUPAC name of $CH_3 - \overset{Br}{\underset{CH_3}{|}{C}} - \underset{CH_3}{\underset{|}{CH}} - \underset{CH_3}{\underset{|}{C}}H - CH_3$ is

..... .

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12. The IUPAC name of $CH_2 = \overset{CH_3}{|}{C} - CH_2Cl$ is

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13. The reactivity of haloacids (HCl, HBr, HI) with alcohol is in the order..... .

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14. The decreasing order of bond length among alkyl halides (CH_3I , CH_3Br , CH_3F , CH_3Cl) is in the order in the order

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15. The bond strength of C-X for the C-Cl, C-Br, C-I, C-F decreases in the order is

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16. The catalyst used in Darzen halogenation of alcohol is

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17. In Finkelstein reaction, the mechanism followed is

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18. Silver salt of fatty acid is converted to bromo alkane by

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19. In Swarts reaction, chloroalkane is converted to

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20. The conversion of bromoalkane to fluoroalkane by heating with AgF is called

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21. The decreasing order of boiling point of haloalkanes CH_3Br , CH_3Cl , CH_3F , CH_3I is

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22. The correct increasing order of boiling point of haloalkanes CH_3Cl , $CHCl_3$, CH_2Cl_2 , CCl_4

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23. Ethyl bromide reacts with alcoholic $AgCN$ to form

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24. Ethyl bromide reacts with alcoholic KNO_2 to form

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25. The reaction in which sodium alkoxide react with haloalkane to form ether in called

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26. Primary alkyl halide react with aqueous NaOH follows

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27. Tertiary butyl bromide reacts with aqueous KOH follows

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28. The product formed when tertiary butyl chloride is treated with alcoholic KOH is

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29. When 2-bromobutane reacts with alcoholic KOH, the products formed are

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30. The product formed when iodoethane is treated with HI in the presence of red phosphorous is

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31. is used as an antiseptic.

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32. is used for extinguishing the fire caused by oil or petrol under the commercial name pyrene.

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33. Ethyl formate reacts with methyl magnesium iodide followed by acid hydrolysis to yield

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34. Ethyl-methyl ether ethene is obtained by the action of methyl magnesium iodide with

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35. The catalyst used in the preparation of chlorobenzene from benzene is

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36. In the Gattermann reaction of preparation of chlorobenzene from benzene, the catalyst used is

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37. The conversion of benzene diazonium chloride to chlorobenzene in the presence of $Cu_2Cl_2 + HCl$ is named as



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38. Fluorobenzene is prepared from benzene diazonium chloride by



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39. Conversion of benzene to chlorobenzene in the presence of $CuCl_2/HCl$ is named as



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40. The conversion of chlorobenzene to phenol by the action of NaOH is called



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41. In Wurtz Fittig reaction, chlorobenzene is converted to by reacting it with ethyl chloride.

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42. The product obtained in Fittig reaction of chlorobenzene is

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43. The reagent used in the conversion of Chlorobenzene to Benzene is

 [View Text Solution](#)

44. Iso-propylidene chloride is an example of

 [View Text Solution](#)

45. The IUPAC name of $CH_3 - \overset{CH_3}{\underset{Br}{|C}} - CH_2Br$ is

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46. The reagent used in the conversion of ethylene dichloride is

 [View Text Solution](#)

47. Chloroform is converted to methylene-chloride by the action of

 [View Text Solution](#)

48. The reagents used in the preparation of chloroform are

 [View Text Solution](#)

[View Text Solution](#)

49. The formula of Chloropicrin is

[View Text Solution](#)

50. The product formed when methylamine react with chloroform and alkali is

[View Text Solution](#)

51. The product formed when CCl_4 reacts with hot water vapours is

[View Text Solution](#)

52. The formula of Freon 11 is

[View Text Solution](#)

53. The formula of Freon 12 is

 [View Text Solution](#)

54. The catalyst used in the preparation of CCl_2F_2 from CCl_4 and HF is

 [View Text Solution](#)

55. The reagents used to prepare DDT are

 [View Text Solution](#)

56. The name of $CFCl_3$ is

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57. The treatment of acetone with excess of RMgX gives:

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58. The most easily hydrolysed molecule under $\text{S}_{\text{N}}2$ reaction is

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59. $\text{HCHO} \xrightarrow[\text{(ii) } \text{H}_2 \text{ } \frac{\text{O}}{\text{H}^+}]{\text{(i) } \text{CH}_3\text{MgI}}$ X. the product 'X' is

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60. On heating CHCl_3 with aqueous NaOH solution, the product formed is

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61. Chloropicrin is used as

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62. Iodoform can be used as

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63. In oil fire extinguisher, the compound used pyrene is chemically

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64. Reaction of ethyl chloride with sodium metal leads to the formation of

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65. When chloroform is treated with primary amine and KOH, we get

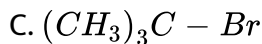
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Additional Questions Solved Choose The Odd One Out

1. Choose the odd one out.



Answer: C



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2. Choose the odd one out.

A. Finkelstein reaction

B. Wurtz reaction

C. Swarts reaction

D. Friedel crafts alkylation

Answer: D



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3. Choose the odd one out.

A. PCl_5

B. $SOCl_2$

C. HCl

D. HF

Answer: D



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4. Choose the odd one out.

- A. Aerosol spray propellant
- B. Metal cleaning agent
- C. Anaesthetic agent
- D. Solvent in paint remover

Answer: C



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Additional Questions Solved Choose The Correct Pair

1. Choose the correct pair.

- A. Chlorobenzene + chloral : DDT
- B. Chloroform + HNO_3 : Phosgene
- C. Chloroform + Zn/HCl : Methyl isocyanide
- D. Methane + $4Cl_2$: Carbon tetra chloride

Answer: C

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2. Choose the correct pair.

- A. Chloroform : Analgesic
- B. Freon : Propellant
- C. Chloropicrin : Antisptic
- D. DDT : Propellant

Answer: B

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3. Choose the correct pair.

- A. Feron : Refrigerant
- B. DDT : Antiseptic
- C. Methylene : Soil sterilizing agent
- D. Iodoform : Anaesthetic

Answer: A



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4. Choose the correct pair.

- A. $HCOH + CH_3MgI$: Secondary alcohol
- B. $CH_3CHO + CH_3MgI$: Tertiary alcohol
- C. $CH_3COCH_3 + CH_3MgI$: Primary alcohol

D. $CO_2 + CH_3MgI$: Acetic acid

Answer: D

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5. Choose the correct pair.

A. $(CH_3)_3C - Cl +$ alcoholic KOH : S_{N1} reaction

B. $(CH_3)_3C - Cl +$ alcoholic KOH : E_1 reaction

C. $(CH_3)_3C - Cl +$ aqueous KOH : S_{N2} reaction

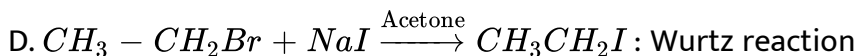
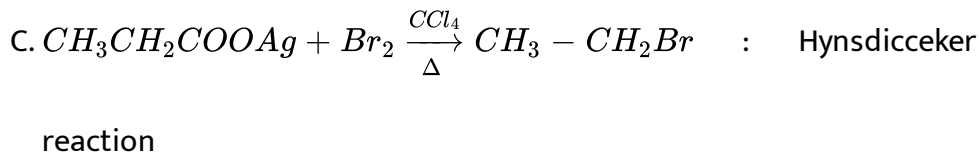
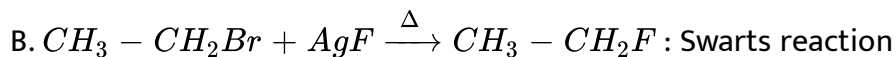
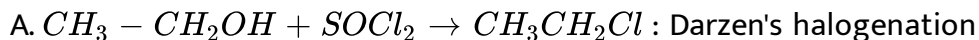
D. $CH_3 - Cl +$ aqueous KOH : S_{N1} reaction

Answer: B

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Additional Questions Solved Choose The Incorrect Pair

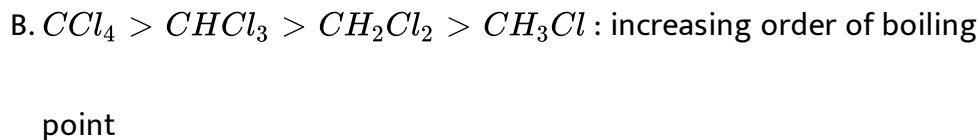
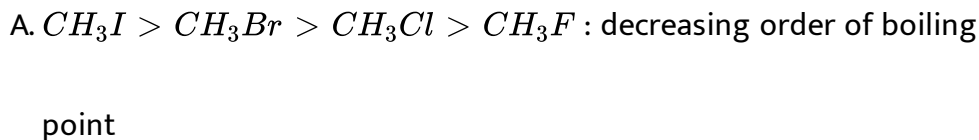
1. Choose the incorrect pair.



Answer: D

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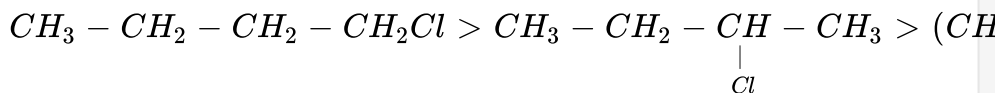
2. Choose the incorrect pair.





increasing order of boiling point

D.



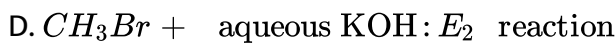
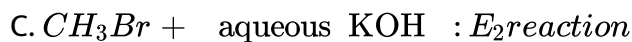
: decreasing order of boiling point

Answer: C



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3. Choose the incorrect pair.



Answer: C



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4. Choose the incorrect pair.

A. 1-chloropropane + alcoholic KOH : propene

B. Tert. Butyl bromide + Alcoholic KOH : Isobutylene

C. $CH_3 - CH_2I + HI + \text{Red P}$: Ethane

D. $CH_3CHO - CH_3MgI$: Tert. Butyl alcohol

Answer: D



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5. Choose the incorrect pair.

A. $HCHO + CH_3MgI$: Primary alcohol

B. $CH_3CHO + CH_3MgI$: Secondary alcohol

C. $CH_3COCH_3 + CH_3MgI$: Aromatic alcohol

D. $CO_2 + CH_3MgI$: Aromatic alcohol

Answer: C

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Additional Questions Solved Assertion Reason

1. Assertion (A): The C-I in CH_3X is weak.

Reason (R): Larger the size, greater is the bond length and weaker is the bond formed.

- A. Both (A) and (R) are correct and (R) is the correct explanation of (A).
- B. Both (A) and (R) are correct but (R) is the correct explanation of (A).
- C. (A) is correct but (R) is wrong
- D. (A) is wrong but (R) is correct

Answer: A

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2. Assertion (A): Haloalkanes have higher boiling point and melting point than the parent alkanes having the same number of carbon.

Reason (R): The intermolecular forces of attraction and dipole-dipole interactions are stronger in haloalkanes.

- A. Both (A) and (R) are correct and (R) is the correct explanation of (A).
- B. Both (A) and (R) are correct but (R) is not the correct explanation of (A).
- C. (A) is correct but (R) is wrong.
- D. (A) is wrong but (R) is correct.

Answer: A



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3. Assertion (A): Among isomeric halides, the boiling point decreases with increase in branching in alkyl group.

Reason (R): With the increase in branching, the molecule attains spherical shape with less surface area and less forces of interaction.

- A. Both (A) and (R) are correct and (R) is not the correct explanation of (A).
- B. Both (A) and (R) are correct and (R) is the correct explanation of (A).
- C. (A) is correct but (R) is wrong.
- D. (A) is wrong but (R) is correct.

Answer: A



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4. Assertion (A): The melting point of para halobenzene is higher than that of ortho and meta isomers.

Reason (R): The higher melting point of p-isomer is due to its symmetry

which leads to more close packing of its molecules in the crystal and subsequently p-isomer have strong intermolecular attractive forces.

- A. both (A) and (R) are correct and (R) is the correct explanation of (A).
- B. Both (A) and (R) are correct but (R) is not the correct explanation of (A).
- C. (A) is correct but (R) is wrong.
- D. (A) is wrong but (R) is correct.

Answer: A



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5. Assertion (A): Haloarenes are insoluble in water.

Reason (R): Haloarenes are able to form hydrogen bonds with water.

- A. Both (A) and (R) are correct but (R) is the correct explanation of (A).

- B. both (A) and (R) are correct and (R) is not the correct explanation of (A).
- C. (A) is correct but (R) is wrong.
- D. (A) is wrong but (R) is correct

Answer: C

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6. Assertion (A): Haloarenes do not undergo nucleophilic substitution reactions readily. Reason (R): The C - X bond in aryl halides is short and stronger and also the aromatic ring is a centre of high electron density.

- A. Both (A) and (R) are correct and (R) is the correct explanation of (A).
- B. Both (A) and (R) are correct but (R) is not the correct explanation of (A).
- C. (A) is correct but (R) is wrong.
- D. (A) is wrong but (R) is correct.

Answer: A



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7. Assertion (A): Chloroform vapours can be used as an anaesthetic.

Reason (R): Chloroform vapours depresses the central nervous system and cause unconsciousness.

- A. Both (A) and (R) are correct but (R) is not the correct explanation of (A).
- B. Both (A) and (R) are correct and (R) is the correct explanation of (A).
- C. (A) is correct but (R) is wrong.
- D. (A) is wrong but (R) is correct.

Answer: A



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8. Assertion (A): Nowadays chloroform is not used as an anaesthetic.

Reason (R): Chloroform undergoes oxidation in the presence of light and air to form highly poisonous phosgene.

A. Both (A) and (R) are correct and (R) is the correct explanation of (A).

B. Both (A) and (R) are correct but (R) is not the correct explanation of (A).

C. (A) is correct but (R) is wrong

D. (A) is wrong but (R) is correct.

Answer: A



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9. Assertion (A): DDT is banned now-a-days.

Reason (R): DDT has a long term toxic effect.

- A. Both assertion and reason are true and reason is the correct explanation of assertion.
- B. Both assertion and reason are true but reason is not the correct explanation of assertion.
- C. Assertion is true but reason is false.
- D. Assertion is false but reason is true.

Answer: A



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Additional Questions Solved Choose The Correct Statement

1. Choose the correct statement.

- A. Halo alkanes have higher boiling point than the parent alkane with same number of carbons because of strong inter molecular forces

of attraction.

B. The boiling point of halo alkanes decreases with the increase of halogen atoms.

C. The boiling point of mono halo alkanes decreases with the increase in the number of carbon atoms.

D. Halo alkanes are soluble in water.

Answer: A



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2. Choose the correct statement.

A. Halo alkanes are soluble in water.

B. The boiling point of halo alkanes increase with the increase in the number of halogen atoms.

- C. The melting point of mono halo alkane decrease with the increase in the number of carbon atoms.
- D. The density of alkyl halides are lesser than those of hydrocarbons of comparable molecular weight.

Answer: B

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3. Choose the correct statement.

- A. Williamson's synthesis of ether is an example of nucleophilic substitution reaction.
- B. Reaction of methyl bromide with aqueous potassium hydroxide is an example of elimination reaction.
- C. Reaction of Tertiary butyl bromide with alcoholic KOH is an example of S_N2 reaction.

D. Reaction of Tertiary butyl bromide with alcoholic KOH is an example of E_2 reaction.

Answer: A

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Additional Questions Solved 2 Marks Questions

1. Write the IUPAC names of (i) $CH_2 = CHCl$ (ii) $CH_2 = CH - CH_2Br$

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2. Write the structural formula of the following compounds :

(i) 2-Chloro-2-Methylpropane

(ii) 1-Bromo-2,2-Dimethylpropane

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3. How many isomers are possible for the formula C_3H_7F ? Give their structures and names

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4. Write the isomeric structures and names for the formula $C_2H_4Cl_2$

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5. Draw the structures of (i) 1-bromo-2, 3-dichlorobutane

(ii) 2-bromo-3-chloro-2, 4-dimethyl pentane

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6. What happens when HI reacts with teri-butyl alcohol ?

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7. Explain the action of (i) PCl_5 (ii) PCl_3 with ethanol

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8. How does HBr react with propene?

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9. How methane reacts with Cl_2 in the presence of light ?

 [View Text Solution](#)

10. Explain-Finkelstein reaction.

 [View Text Solution](#)

11. Explain Swarts reaction .

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12. What happens when silver propionate reacts with Br_2 in CCl_4 ?

 [View Text Solution](#)

13. Haloalkanes have higher boiling point and melting point than the parent alkane. Justify this statement.

 [View Text Solution](#)

14. $CCl_4 > CHCl_3 > CH_2Cl_2 > CH_3Cl$ is the decreasing order of boiling point in haloalkanes. Give reason.

 [View Text Solution](#)

15. Arrange the following in increasing order of boiling point . Give reason

$(CH_3CH_2CH_2Cl, CH_3CH_2Cl, CH_3Cl)$

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16. Why haloalkanes are insoluble in water but soluble in organic solvents?

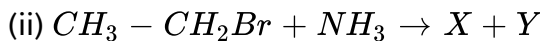
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17. What happens when bromoethane is treated with moist silver oxide?

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18. Complete the following reactions :





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19. Explain the action of sodium hydrogen sulphide with bromoethane ?

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20. Explain Williamson's synthesis.

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21. Explain the action of alcoholic potash with bromoethane.

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22. State-Saytzeff's rule.

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[View Text Solution](#)

23. How will you convert 1-chloropropane to propene?

 [View Text Solution](#)

24. What is Grignard reagent? How is it prepared from ethyl bromide?

 [View Text Solution](#)

25. How will you prepare ethyl lithium ?

 [View Text Solution](#)

26. What is tetraethyl lead ? How is it prepared ?

 [View Text Solution](#)

27. Convert bromoethane to ethane .

 [View Text Solution](#)

28. How is iodoethane converted to ethane ?

 [View Text Solution](#)

29. Starting from CH_3MgI , how will you prepare acetaldehyde ?

 [View Text Solution](#)

30. How will you get acetone from methyl magnesium iodide ?

 [View Text Solution](#)

31. Explain the action of Ethyl chloroformate with Methyl magnesium iodide .



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32. Write the IUPAC names of :



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33. How is benzene directly converted to chlorobenzene ?



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34. Explain Sandmeyer's reaction .



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35. Explain Gattermann reaction.



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36. How will you prepare iodobenzene ?

 [View Text Solution](#)

37. Explain-Balz-Schiemann reaction.

 [View Text Solution](#)

38. p-dichlorobenzene has higher melting point than ortho and meta dichloro benzene. Why?

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39. Explain Wurtz- fitting reaction .

 [View Text Solution](#)

40. How will you get benzene from chlorobenzene ?

 [View Text Solution](#)

41. Explain about the preparation of phenyl magnesium chloride .

 [View Text Solution](#)

42. How will you prepare ethylidene dichloride from acetylene ?

 [View Text Solution](#)

43. What is gem-dihalide? Give one example and explain its preparation.

 [View Text Solution](#)

44. Explain the action of zinc and HCl on chloroform .

 [View Text Solution](#)

45. How does nickel react with chloroform?

 [View Text Solution](#)

46. Convert methane to methylene chloride

 [View Text Solution](#)

47. Explain Carbylamine reaction.(or) Give the characteristic test for primary amine.

 [View Text Solution](#)

48. How will you prepare carbon tetrachloride ?

 [View Text Solution](#)

49. How will you convert carbon tetrachloride to chloroform ?

 [View Text Solution](#)

50. What are freons ? How are they named ? Give two examples .

 [View Text Solution](#)

51. What are ambident nucleophiles ? Explain with an example .

 [View Text Solution](#)

52. Which compound in each of the following pairs will react faster in S_N2 reaction with OH^- ion ? (i) CH_3Br or CH_3I
(ii) $(\text{CH}_3)_3\text{CCl}$ or CH_3Cl

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53. The treatment of alkyl chlorides with aqueous KOH solution leads to the formation of alcohols but in the presence of alcoholic KOH solution, alkenes are the major product. Explain.

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54. Give one example of each of the following reactions :

(i) Wurtz Reaction (ii) Wurtz - Fitting reaction

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55. How will you distinguish between the following pair of compounds:

(i) Chloroform and carbon tetrachloride,

(ii) Benzyl alcohol and chlorobenzene.

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Additional Questions Solved 3 Marks Questions

1. Give one example with structure and name for each of the following compounds.

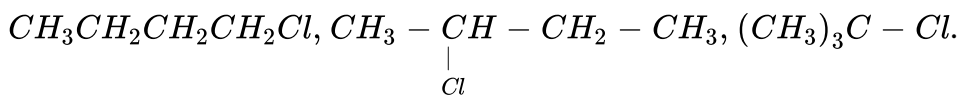
(a) Primary haloalkane (b) Secondary haloalkane (c) Tertiary haloalkane

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2. Write the possible isomers for the formula C_4H_9Cl with structures and names.

 [View Text Solution](#)

3. Among



Which one has low boiling point? Give reason.

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4. Explain ammonolysis of haloalkanes. (or) How excess of haloalkane react with alcoholic ammonia?

 [View Text Solution](#)

5. Explain how bromoethane reacts with (i) alcoholic KCN (ii) alcoholic AgCN

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6. Explain the hydrolysis of 2-bromobutane with aqueous KOH.

 [View Text Solution](#)

7. Explain the action of alcoholic KOH with 2-bromobutane.

 [View Text Solution](#)

8. Mention the uses of chloroform.

 [View Text Solution](#)

9. What are the uses of carbon tetrachloride?

 [View Text Solution](#)

10. What are organometallic compounds? Give one example. Explain the nature of carbon-metal bond.

 [View Text Solution](#)

11. How would you prepare acetic acid from methyl magnesium iodide?

 [View Text Solution](#)

12. Explain the nature of C- X bond in haloarenes and its resonance structure.

 [View Text Solution](#)

13. Compare the bond length C - X in haloarenes and C - X in haloalkanes.

 [View Text Solution](#)

14. What are the uses of chlorobenzene?

 [View Text Solution](#)

15. What are polyhalogen compounds? Give its types with example.

 [View Text Solution](#)

16. Give two examples for (1) gem dihalide (2) vicinal dihalide.

 [View Text Solution](#)

17. Explain two methods of preparation of ethylene dichloride.

 [View Text Solution](#)

18. How would you distinguish gem-dihalides and vicinal dihalides?

 [View Text Solution](#)

19. Explain the action of metallic zinc with (i) Ethylidene dichloride (ii) Ethylene dichloride.

 [View Text Solution](#)

20. What happens when alcoholic KOH is treated with (i) Ethylidene dichloride (ii) Ethylene dichloride?

 [View Text Solution](#)

21. What are the uses of methylene chloride?

 [View Text Solution](#)

22. Explain the laboratory preparation of chloroform.

 [View Text Solution](#)

23. What is chloropicrin? How is it obtained? Mention its uses.

 [View Text Solution](#)

24. What are the uses of freons?

 [View Text Solution](#)

25. What is DDT? How is it prepared?

 [View Text Solution](#)

26. Mention the uses of DDT.

 [View Text Solution](#)

27. Write the equations for the preparation of 1-iodobutane from:

(i) 1-butanol (ii) 1-chlorobutane (iii) but-1-ene

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28. Explain why:

(i) the dipole moment of chlorobenzene is lower than that of cyclohexyl chloride?

(ii) alkyl halides though polar. are immiscible with water?

(iii) Grignard reagents should be prepared under anhydrous conditions?

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29. Explain as to why haloarenes are much less reactive than haloalkanes towards nucleophilic substitution reactions?

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30. Do the following conversions:

(i) Methyl bromide to acetone (ii) Benzyl alcohol to 2-phenylacetic acid

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31. Give reasons for the following:

- (i) Ethyl iodide undergoes S_N2 reactions faster than ethyl bromide.
- (ii) (±) 2 - Butanol is optically inactive.
- (iii) C - X bond length in halobenzene is smaller than C - X bond length in $CH_3 - X$.

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32. Write the structure of diphenyl. How is it prepared from chlorobenzene ?



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Additional Questions Solved 5 Marks Questions

1. Explain the classification of organic compounds with example.

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2. Explain S_N2 mechanism with suitable example.

 [View Text Solution](#)

3. S_N2 reaction of an optically active haloalkane is accompanied by inversion of configuration at the asymmetric centre. Prove it.

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4. Explain E_2 reaction mechanism with a suitable example.

 [View Text Solution](#)

5. Describe E, reaction mechanism with a suitable example.

 [View Text Solution](#)

6. Starting from methyl magnesium iodide how would you prepare (i) Ethanol (ii) 2-propanol (iii) Tert-butyl alcohol.

 [View Text Solution](#)

7. Starting from methyl magnesium iodide, how would you prepare (i) Ethyl methyl ether (ii) methyl cyanide (iii) methane.

 [View Text Solution](#)

8. Describe electrophilic substitution reaction of chlorobenzene with equations.

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9. An organic compound A of molecular formula C_3H_6 react with HBr in the presence of peroxide to give C_3H_7Br as B. B on reaction with aqueous KOH given C with molecular formula C_3H_8O . Identify A, B and C.



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10. An organic compound A of molecular formula C_2H_6O reacts with thionyl chloride in the presence of pyridine gives B C_2H_5Cl . B on reaction with alcoholic KOH gives C. C_2H_4 , C on treatment with Cl_2 gives $C_2H_4Cl_2$ as D. Identify A,B,C,D and explain the reaction.



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11. The simplest aromatic hydrocarbon C_6H_6 reacts B on treatment with sodium hydroxide will (C_6H_5OH), Phenol, C as the product. Also Cl_2 to give A which on reaction with sodium hydroxide gives B. B of molecular formula C_6H_6O . B on treatment with ammonia will give C_6H_7N as D. Identify A, B, C and explain the reactions involved.



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12. An organic compound A of molecular formula C_2H_2 reacts with HCl to give $C_2H_4Cl_2$ as B. B on reaction with aqueous KOH will give C_2H_4O as C. Identify A, B, C, and explain the reaction involved.

 [View Text Solution](#)

13. Two isomers of formula C_4H_9Br are A and B, A on reaction with alcoholic KOH gives of molecular formula C_4H_8 by E_1 reaction. B on reaction with alcoholic KOH gives D and E as products by Saytzeff's rule. Identify A, B, C, D, E.

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14. A Simple aromatic hydrocarbon A reacts with Cl_2 to give B of molecular formula C_6H_5Cl . B on reaction with ethyl chloride along with sodium metal gives C of formula C_8H_{10} . C alone reacts with Na metal in the presence of ether to give D $C_{12}H_{10}$. Identify A, B, C & D.

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15. An organic compound A of molecular formula CH_2O reacts with methyl magnesium iodide followed by acid hydrolysis to give B of molecular formula C_2H_6O . B on reaction with PCl_4 gives C. C on reaction with alcoholic KOH gives D an alkene as the product. Identify A, B, C, D and explain the reactions involved.

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