CHEMISTRY

BOOKS - MODERN PUBLICATION CHEMISTRY (KANNADA ENGLISH)

HALOALKANES AND HALOARENES

Mcq Level I Alkyl Halides Nomenclature Preparation And Properties

1. If the two chlorine atoms are attached to the same carbon atom of an alkane, it is termed as :

A. alkyl dichloride

B. alkylene halide

C. alkyl halide

D. alkylidene halide

Answer: D

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2. Wurtz synthesis is carried out by treating :

A. alkyl halide in dry benzene with metallic sodium

B. alkyl halide

C. alkyl halide in dry ether with sodium metal

D. alkyl halide in aqueous solution of sodium hydroxide

Answer: C

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3. Dehydration of 1 -propanol by the use of H_2SO_4 and subsequent treatment with HI gives :

A. $CH_3CH_2CH_2I$

B. $CH_3CH(I)CH_3$

C. $CH_2 = CHCH_2I$

D. $ICH = CHCH_3$

Answer: B

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4. Which is the correct method for the preparation of 2-bromopropane ?

A. HBr is treated with 1 -propanol

B. Propene is treated with HBr in the presence of peroxides

C. 1-Propanol is treated with conc. H_2SO_4 followed by the reaction with HBr

D. Ethylene is treated with Br_2 (in CCl_4) followed by the elimination of HBr

Answer: C

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5. Identify Z in the reaction :

$$C_2H_5I \xrightarrow{\text{alc. KOH}} X \xrightarrow{Br_2} Y \xrightarrow{KCN} Z$$

A. CH_3CH_2CN

B. $CNCH_2CH_2CN$

C. $BrCH_2CH_2CN$

D. $BrCH = CHCN$

Answer: B

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6. If methyl bromide and ethyl bromide are mixed in equal proportion and the mixture is treated with sodium, the number of possible organic products is :

A. 1

B. 2

C. 3

D. 4

Answer: C

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7. 1-Chlorobutane on reaction with alcoholic potash gives :

A. 1 -butene

B. 1 -butanol

C. 2-butene

D. 2-butanol

Answer: A

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8. The typical reaction of alkyl halide is :

A. Electrophilic substitution

B. Nucleophilic substitution

C. Electrophilic addition

D. Nucleophilic addition

Answer: B

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9. In S_N1 reactions, the order of reactivity of halides is :

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

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

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

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

Answer: A

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10. For a given halogen atom, the reactivity is maximum for :

A. methyl halide

B. primary halide

C. secondary halide

D. tertiary halide

Answer: D

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11. The most reactive alkyl halide is :

A. $R - Cl$

B. $R - Br$

C. $R - I$

D. $R - F$

Answer: C

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12. Which of the following alkyl halides most readily undergoes hydrolysis by $S_N I$ mechanism?

A. $CH_3CH_2CH_2Cl$

B. CH_3Cl

C. $(CH_3)_2CHCl$

D. $(CH_3)_3CCl$

Answer: D

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13. The compound ethylisocyanide is prepared by the reaction between :

A. C_2H_5Br and KCN

B. C_2H_5Br and AgCN

C. C_2H_5Br and HCN

D. C_2H_5Br and ammonia

Answer: B

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14. In S_N1 type mechanism, the intermediate species is :

A. a free radical

B. a carbonium ion

C. a carbanion

D. none of these

Answer: B

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15. Iodoethane is treated with alcoholic KCN and the product obtained is hydrolysed with dil. HCl. The final product is :

A. Propanoic acid

B. Propanamide

C. Propane nitrile

D. Butanoic acid

Answer: A

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16. Which of the following reactions is an example of Wurtz reaction ?

A. $RX + H_2 \xrightarrow{Ni, Al} RH + HX$

B. $2RX + 2Na \xrightarrow{\text{Ether}} R - R + 2NaX$

C. $RX + KCN \rightarrow RCN + KX$

D. $RX + Mg \xrightarrow{\text{Ether}} RMgX$

Answer: B

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17. Alkyl halides on treatment with aqueous KOH give :

A. Acids

B. Alcohols

C. Aldehydes

D. Alkanes

Answer: B

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18. The major product obtained when 2-bromobutane is heated with alcoholic KOH is :

A. 1-Butene

B. 2-Butene

C. 1-Butanol

D. 2-butanol

Answer: B

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19. The IUPAC name of the compound $(CH_3)_3CCl$ is :

A. 1-Chloro - 1, 1, 1-trichloromethane

B. 2-Chloro-2-methylpropane

C. 2-Chlorobutane

D. Trimethyl chloromethane

Answer: B

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20. The number of isomeric alkyl bromides of molecular formula C_4H_9Br is :

A. Four

B. Five

C. Three

D. Six

Answer: A

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21. Ethyl bromide reacts with silver cyanide to give :

A. Ethyl acetate

B. Ethyl isocyanide

C. Ethyl cyanide

D. Ethyl amine

Answer: B

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22. Which of the following will have maximum boiling point ?

A. C_3H_7Br

B. C_3H_7F

C. C_3H_7Cl

D. C_3H_7I

Answer: D

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23. 1-Chlorobutane on reaction with alcoholic potash gives :

A. 1-Butene

B. 1-Butanol

C. 2-Butene

D. 2-butanol

Answer: A

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24. Methyl bromide reacts with silver acetate to give :

A. Acetic acid

B. Acetyl chloride

C. Methyl acetate

D. Acetaldehyde

Answer: C

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25. In Wurtz synthesis, the reactivity of alkyl halides with sodium metal follows the order :

A. $RCl > RBr > RI$

B. $RBr > RCl > RI$

C. $RI > RBr > RCl$

D. $RBr > RI > RCl$

Answer: C

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26. Which of the following alkyl halides is isopropyl chloride?

A. $CH_3CH_2CH_2Cl$

B. $CH_3 - \underset{\underset{Cl}{|}}{CH}CH_3$

C. $CH_3 - \underset{\underset{CH_3}{|}}{CH} - CH_2Cl$

D. $\underset{\underset{Cl}{|}}{CH_3CH}CH_2Cl$

Answer: B

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27. Thioalcohols are prepared by treating alkyl halides with :

A. KSH

B. C_2H_5Sna

C. H_2S

D. $AgCNS$

Answer: A

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28. On heating ethyl bromide with an alloy of lead-sodium, we get :

A. Ethyl lead bromide

B. Butane

C. Tetraethyl lead

D. Propane

Answer: C

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29. The reaction

$CH_3COOAg + Br_2 \rightarrow CH_3Br + CO_2 + AgBr$ is known as :

A. Hunsdiecker reaction

B. Perkin's reaction

C. Etard's reaction

D. Raschig reaction

Answer: A

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30. CH_3CHCl_2 and CH_2ClCH_2Cl are examples of :

A. Functional isomerism

B. Metamerism

C. Chain isomerism

D. Positional isomerism

Answer: D

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31. Which of the following alkyl halides undergoes elimination reaction readily?

A. RI

B. RBr

C. RCl

D. RF

Answer: A

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32. The reaction

$R - Cl + KI \xrightarrow{\text{Acetone}} RI + KCl$ is known as :

A. Hunsdiecker reaction

B. Finkelstein reaction

C. Wurtz Fitting reaction

D. Ulmann reaction

Answer: B

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33. Ethyl bromide can be obtained by the action of HBr on :

A. Acetylene

B. Propene

C. Ethane

D. Ethanol

Answer: D

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34. What mass of propene is formed from 34.0 g of iodopropane on heating with ethanolic KOH, if the yield is 36%?

A. 17.2 g

B. 8.4 g

C. 3.024 g

D. 1.72 g

Answer: D

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35. S_N1 reaction of alkyl halides leads to :

A. retentionof configuration

B. racemisation

C. inversion of configuration

D. none of these

Answer: B

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36. Reactivity of order of halides for dehydrohalogenation is

A. $R-F>R-Cl>R-Br>R-I$

B. $R-I>R-Br>R-Cl>R-F$

C. $R-I>R-Cl>R-Br>R-F$

D. $R-F>R-I>R-Br>R-Cl$

Answer: B

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37. The number of structural isomers for the molecular formula $C_5H_{11}Br$ is :

A. 8

B. 6

C. 12

D. 5

Answer: A

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38. $CH_3Br + AgF \rightarrow CH_3F + AgBr$. Name the reaction.

A. Swart reaction

B. Finkelstein reaction

C. Gattermann reaction

D. Perkin reaction

Answer: A

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39. A hydrocarbon C_5H_{12} gives only one monochlorination product. The hydrocarbon is

A. 2-Methyl butane

B. 2, 2-Dimethyl propane

C. 1, 2-Dimethyl propane

D. 2, 3-Dimethy butane

Answer: B

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40. The alkyl halide that undergoes S_NI reaction more readily is :

A. ethyl bromide

B. isopropyl bromide

C. vinyl bromine

D. t-butyl bromide

Answer: D

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Mcq Level I Halides Nomenclature Preparation And Properties

1. When chlorobenzene is heated with conc. NaOH solution at about 575 K under high pressure, the product is :

A. phenol

B. m-chlorophenol

C. o- and p- chlorophenol

D. benzene

Answer: A

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2. When chlorobenzene is heated with copper powder in a sealed tube, it gives :

A. benzene

B. diphenyl

C. naphthalene

D. phenol

Answer: B

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3. The reaction between $C_6H_5NH_2$ and chloroform and a few drops of alcoholic KOH is known as:

A. Cannizzaro's reaction

B. Carbylamine reaction

C. Frankland reaction

D. Wurtz reaction

Answer: B

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4. Ortho chlorotoluene on oxidation with $KMnO_4$ gives :

A. Benzoic acid

B. Touene

C. o-Chlorobenzoic acid

D. o-Chlorobenzaldehyde

Answer: C

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5. Chlorobenzene can be prepared by reacting aniline with :

A. Zn and HCl

B. Cuprous chloride

C. Chlorine in the presence of anhydrous $AlCl_3$

D. Nitrous acid followed by heating with cuprous chloride and HCl

Answer: D

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6. Fluorobenzene is prepared by treating benzene diazonium chloride with fluoroboric acid and heating the product obtained. This reaction is known as :

A. Schiemann reaction

B. Sandmeyer reaction

C. Gattermann reaction

D. Ulmann reaction

Answer: A

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7. Chlorobenzene when heated with aqueous ammonia in the presence of Cu_2O under pressure gives :

A. Aniline

B. diphenyl

C. Diphenylamine

D. Phenyl isocyanide

Answer: A

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8. Chlorobenzene is commercially prepared by :

A. Etard reaction

B. Wurtz Fitting reaction

C. Raschig reaction

D. Grignard reaction

Answer: C

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9. Chlorobenzene on reduction with Na/Al alloy and alcohol gives :

A. Toluene

B. Benzene

C. Benzoic acid

D. Chlorotoluene

Answer: B

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10. The number of isomeric compounds of the formula C_7H_7Br is

:

A. Three

B. Four

C. Five

D. Six

Answer: B

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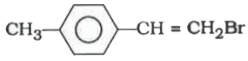
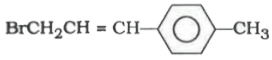
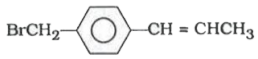
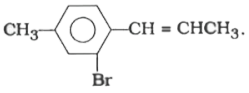
11. Which of the following is an example of allylic halide?

A. 

B. 

C. 

D. 

Answer: B

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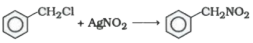
12. Which of the following is a free radical substitution reaction ?

A. 

B. 

C. 

D. 

Answer: A

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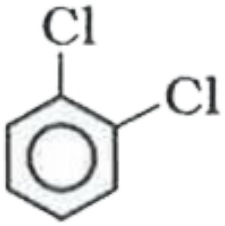
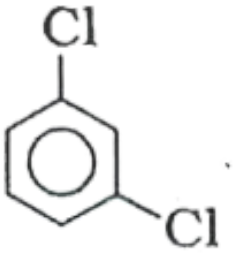
13. Which of the following has the highest boiling point?

A. CH_2Cl_2

B. 

C. 

D. 

Answer: C

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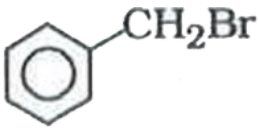
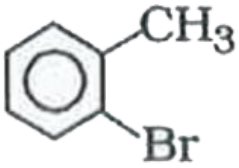
14. The product of the reaction

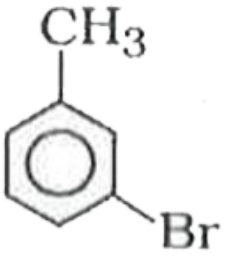
A.

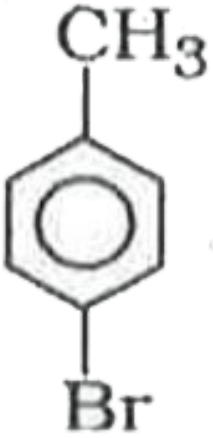


B.



C.



D. 

Answer: A

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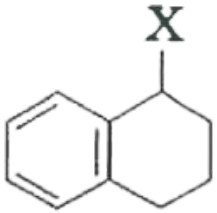
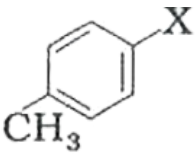
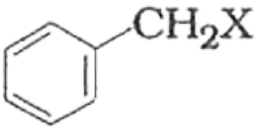
15. Which of the following does not contain $C_{sp^3} - X$ bond?

A. 

B. 

C. $CH_3CH = CH - \overset{CH_3}{\overset{|}{C}}H - X$

D. 

Answer: B

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Mcq Level I Polyhalogen Derivatives Of Alkanes

1. When chloroform is exposed to light and damp air, it gives among other products

A. Carbon tetrachloride

B. Carbonyl chloride

C. Mustard gas

D. Carbon monoxide

Answer: B

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2. Chloroform on heating with silver powder gives :

A. Acetylene

B. Methane

C. Ethylene

D. Nitro ethane

Answer: A

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3. Which of the following compounds is used as a refrigerant ?

A. Acetone

B. Carbon tetrachloride

C. CF_4

D. CCl_2F_2

Answer: D

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4. D.D.T. is prepared by heating chlorobenzene with :

A. chloroform

B. chloral

C. aniline

D. chloropicrin

Answer: B

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5. Carbon tetrachloride is used in fire extinguishers under the name of :

A. Freon

B. Pyrene

C. Phosgene

D. Gammexane

Answer: B

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6. B.H.C. is used as a pesticide in agriculture under the trade name :

A. Gammexane

B. D.D.T.

C. Phosgene

D. Westron

Answer: A

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7. Westrosol is a commerical solvent used for oils, paints, varnishes etc. It is obtained from :

A. $CHCl_2 - CHCl_2$

B. $CHCl_3$

C. CCl_2F_2

D. $CHCl = CCl_2$

Answer: A

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8. Gammexane is

A. $C_6H_3Cl_3$

B. $C_6H_4Cl_2$

C. $C_6H_6Cl_6$

D. Diphenyl trichloroethane

Answer: C

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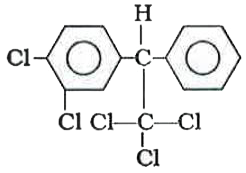
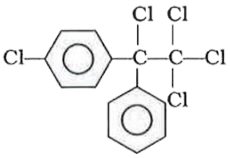
9. Which of the following is the correct structure of D.D.T.?

A. 

B. 

C. 

D. 

Answer: C

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10. Freon-12 is commonly used as :

A. an insecticide

B. fire extinguisher

C. refrigerant

D. solvent

Answer: C

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Mcq Level Ii

1. The product of reaction of alcoholic silver nitrite with ethyl bromide is :

A. Ethane

B. Ethyl alcohol

C. Nitroethane

D. Ethyl nitrite

Answer: C

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2. Which of the following methods will give allyl chloride?

A. Reaction of propane with HCl

B. Ethylene dichloride is heated in a high temperature furnace in the presence of charcoal

C. Propene is heated to $400 - 600^{\circ}C$ in the presence of chlorine

D. Acetone is treated with PCl_5

Answer: C

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3. The reaction of chlorine with propene at $400 - 600^{\circ}C$ gives mainly :

A. $CH_3CHClCH_2Cl$

B. $\underset{Cl}{|}CH_2\underset{Cl}{|}CH\underset{Cl}{|}CH_2$

C. $CH_3CH = CHCl$

D. $ClCH_2CH = CH_2$

Answer: D

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4. Which of the following compounds is least reactive?

A. Vinyl halide

B. Allyl halide

C. Tertiary halide

D. Secondary halide

Answer: A

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5. Which one of the following compounds most readily undergoes substitution by S_N2 mechanism?

A. CH_3CH_2Cl

B. $CH_3 - \overset{CH_3}{\overset{|}{C}}HCH_2Cl$

C. $CH_3 - \underset{\underset{C_2H_5}{|}}{CH} - Cl$

D. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - Cl$

Answer: A

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6. 2-Methyl-1- bromopropane reacts with alcoholic KCN and the product formed is treated with alkaline H_2O_2 to give A. The structure of A is :

A. $CH_3 - \underset{\underset{CH_3}{|}}{CH} - \overset{\overset{O}{||}}{C} - NH_2$

B. $CH_3 - \underset{\underset{CH_3}{|}}{CH} - CH_2 - CH_2COOH$

C. $CH_3 - \underset{\underset{CH_3}{|}}{CH} - CH_2CONH_2$

D. $CH_3 - \underset{\underset{CH_3}{|}}{CH} - CH_2 - CH_2 - NH_2$

Answer: C

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7. Benzyl chloride on oxidation with copper nitrate gives :

A. Benzyl alcohol

B. Benzoic acid

C. Benzyl acetate

D. Benzaldehyde

Answer: D

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8. 2-Propanol reacts with sulphuric acid at $170^{\circ}C$, gives an alkene which reacts with bromine to give dibromoalkane. Alcoholic potassium hydroxide dehydrogenates the dibromo product to X. The structure of X is :

A. $CH_2 = CH - CH_3$

B. $CH_3 - \underset{\underset{Br}{|}}{CH} = CH_2Br$

C. $CH_3 - C \equiv CH$

D. $\underset{\underset{Br}{|}}{CH_2} - C \equiv CH$

Answer: C

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9. Phosphorus pentachloride reacts with acetone to give $POCl_3$ and :

A. $CH_3 - CHCl - CH_3$

B. $CH_2Cl - CO - CH_2Cl$

C. $CH_3 - CCl_2 - CH_3$

D. $CH_2Cl - CHCl - CH_2Cl$

Answer: C

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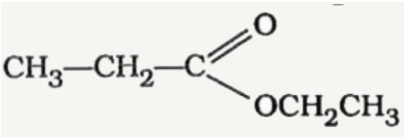
10.  can be obtained from ethyl iodide by treating with :

A. KCN followed by complete hydrolysis with mineral acid

B. CH_3CH_2COOH

C. CH_3CH_2COOH and HCl

D. CH_3CH_2COOAg

Answer: D

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11. Which compound would be obtained as the major product on refluxing 2-chloro-2-methyl butane with alcoholic KOH solution?

A. $(CH_3)_2C = CHCH_3$

B. $CH_3 - CH = CHCH_3$

C. $CH_3 = \underset{\underset{CH_3}{|}}{C} - CH_2 - CH_3$

D. $(CH_3)_2 - \underset{\underset{OH}{|}}{C} - CH_2 - CH_3$

Answer: A

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12. Alkyl ethylamine is heated with chloroform and alcoholic KOH, a compound with offensive smell is formed. This compound is :

A. Williamson synthesis

B. Mendius reaction

C. Cannizzaro reaction

D. Wurtz reaction

Answer: B

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13. Alkyl ethylamine is heated with chloroform and alcoholic KOH, a compound with offensive smell is formed. This compound is :

A. a secondary amine

B. an isocyanide

C. a cyanide

D. an acid

Answer: B

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14. 1-Phenyl-2-chloropropane when treated with alcoholic potash gives mainy :

A. 1-Phenyl propene

B. 3-Phenyl propene

C. 1-Phenyl propane-2-ol

D. 1-Phenyl propane-3-ol

Answer: A

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15. In which of the following compounds, Cl is not easily replaced?

A. CH_3Cl

B. 

C. $CH_2 = CHCH_2Cl$

D. 

Answer: D

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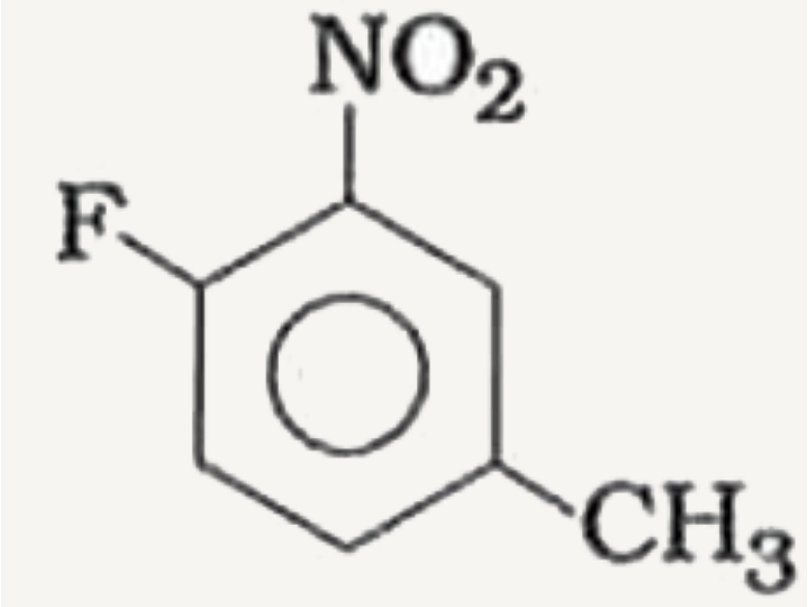
16. The IUPAC name of the compound :



A. 1-fluoro-4-methyl-2-nitrobenzene

B. 4-fluoro-1-methyl-3-nitrobenzene

C. 4-methyl-1-fluoro-2-nitrobenzene

D. 2-fluoro-5-methyl-1-nitrobenzene

Answer: A

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17. Chloroform condenses with acetone to form a compound which is used as a/an:

A. hypnotic

B. anaesthetic

C. refrigerant

D. fire extinguisher

Answer: A

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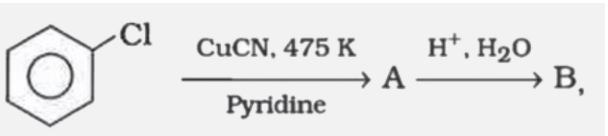
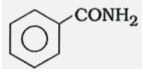
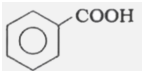
18. In the reaction,

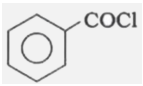


the product B is :

A. 

B. 

C. 

D. 

Answer: B

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19. When isopropyl iodide is treated with methyl iodide in the presence of sodium, the product is :

A. Isobutene

B. Isobutane

C. n-Butane

D. Isopentane

Answer: B

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20. Which of the following reagents cannot be used to prepare an alkyl halide from an alcohol?

A. PCl_5

B. $SOCl_2$

C. aqueous KCl

D. $ZnCl_2 + HCl$

Answer: C

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21. The reaction of an aromatic halogen compound and an alkyl halide in the presence of sodium and dry ether is known as :

A. Ulmann reaction

B. Sandmeyer reaction

C. Fitting reaction

D. Wurtz-Fittig reaction

Answer: D

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22. Benzyl alcohol on treatment with PCl_5 gives :

A. benzene

B. Benzyl chloride

C. Toluene

D. Phenol

Answer: B

Watch Video Solution

23. The silver salt of a fatty acid on refluxing with an alkyl halide gives :

A. ether

B. isocyanide

C. acid

D. ester

Answer: D

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24. Carbon atom holding halogen in aryl halides is :

A. sp^2 hybridized

B. sp^3 hybridized

C. sp-hybridized

D. sp^3 d-hybridized

Answer: A

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25. Which of the following is a gem dihalide?

A. $CH_3CHBrCHBrCH_3$

B. $BrCH_2CH_2Br$

C. $CHBr = CHBr$

D. CH_3CHBr_2

Answer: D

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26. The correct order of melting and boiling points of primary (1°), secondary and tertiary (3°) alkyl halides is :

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

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

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

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

Answer: A

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27. Chloroform easily gets converted to poisonous phosgene in the presence of air and sunlight. Which of the following substances is added to prevent the formation of phosgene?

A. Ethanol

B. Sodium carbonate

C. Diethyl carbonate

D. Sodium hydroxide

Answer: A

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28. Chlorination of toluene in the presence of sunlight gives :

A. Chlorobenzene

B. o- and p-Chlorotoluene

C. Benzyl chloride

D. m-Chlorotoluene

Answer: C

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29. The most suitable reagents required to prepare iodobutane from 1-butene are :

A. P and I_2

B. HI in the presence of H_2O_2

C. KI

D. HBr/H_2O and I_2/acetone

Answer: D

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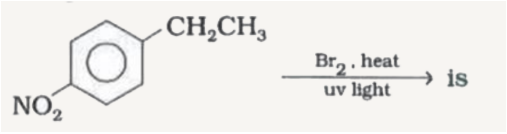
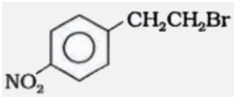
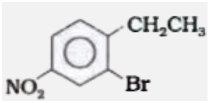
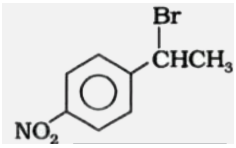
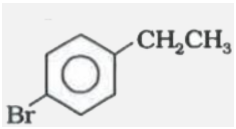
30. The product of the reaction



A. 

B. 

C. 

D. 

Answer: C

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31. Ethylidene chloride and ethylene chloride are isomeric compounds. Which of the following statements is not true about these?

A. Both of these react with alcoholic KOH and give the same product

B. Both are colourless, sweet smelling liquids having boiling point more than 300 K

C. Both give same product with aqueous KOH

D. Both are dihalides

Answer: C

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32. The the reaction

$CH_3CHO \xrightarrow{PCl_5} X \xrightarrow{aq.KOH} Y, Y$ is

A. Ethyne

B. Ethanediol

C. Ethene

D. Ethanal

Answer: D

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33. Aryl halides are less reactive than alkyl halides towards nucleophilic substitution reactions because of :

A. formation of less stable carbonium ion

B. inductive effect

C. larger C-halogen bond

D. resonance stabilization

Answer: D

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34. Which of the following on reaction with aqueous KOH gives acetaldehyde?

A. 1, 2-Dichloroethane

B. 1, 1-Dichloroethane

C. Ethyl chloride

D. Chloroacetic acid

Answer: B

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35. A mixture of 1-chloropropane and 2-chloropropane when treated with alcoholic KOH gives :

A. 2-Propene

B. 1-Propene

C. Isopropylene

D. A mixture of 1-propene and 2-propene

Answer: B

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36. Benzyl chloride reacts with chlorobenzene in the presence of dry ether to give :

A. Dibenzyl

B. Methylbenzyl chloride

C. Diphenylmethane

D. o-Phenyltoluene

Answer: C

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37. Iodoform gives a precipitate with $AgNO_3$ on heating but chloroform does not because :

A. Iodoform is ionic

B. C-I bond in iodoform is weaker while

C-Cl bond in chloroform is strong

C. Iodoform is more reactive than chloroform

D. Iodoform behaves as an acid

Answer: B

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38. S_N1 mechanism of alkyl halides is favoured by :

A. higher concentration of nucleophile

B. polar solvents

C. presence of less bulky alkyl groups

D. strong nucleophiles

Answer: B

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39. Which of the following on reaction with aqueous KOH will give ethanal?

A. Chloroacetic acid

B. 1, 2-Dichloroethane

C. 1, 1-Dichloroethane

D. Ethyl chloride

Answer: C

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40. Which of the following statements is not correct?

A. Gem dihalides are less reactive than alkyl halides

B. Aryl halides are less reactive than alkyl halides

C. Vinyl chloride is more reactive than ethyl chloride

D. Vinyl chloride is less reactive than ethylene

Answer: C

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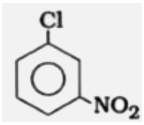
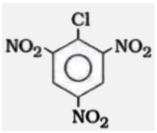
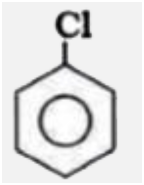
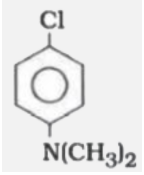
41. Which of the following chloro derivatives of benzene would undergo hydrolysis most readily with aqueous KOH to give the corresponding hydroxy derivative?

A. 

B. 

C. 

D. 

Answer: B

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42. 1-Phenyl-2-chloropropane when treated with alcoholic potash gives mainy :

A. 1-Phenylpropene

B. 3-Phenylpropene

C. 1-Phenylpropan-2-ol

D. 1-Phenylpropan-3-ol

Answer: A

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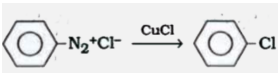
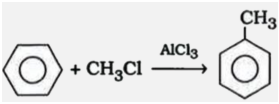
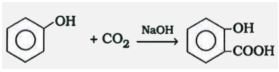
43. Which of the following is an example of Sandmeyer reaction?

A. $2HCHO \xrightarrow{NaOH} CH_3OH + HCOONa$

B. 

C. 

D. 

Answer: B

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44. Which of the following gives precipitate of AgCl readily with alcohlic $AgNO_3$?

A. C_6H_5Cl

B. $CHCl = CHCl$

C. $CH_3CH_2CH_2Cl$

D. $CH_2 = CHCH_2Cl$

Answer: D

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45. In the following reaction

$$CH_3CH_2CH_2I \xrightarrow{alc.KOH} X \xrightarrow{Br_2} Y \xrightarrow[Liq.NH_3]{NaNH_2} Z$$

the end product Z is :

A. Propane

B. Propene

C. Propyne

D. Propanamine

Answer: C

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46. Which of the following is most reactive towards S_N1 reaction?

A. methyl halide

B. Tertiary alkyl halide

C. Secondary alkyl halide

D. Primary alkyl halide

Answer: A

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47. When 2-bromo-3-methylbutane is treated with aqueous KOH, it follows $S_N - 1$ mechanism. The product formed is :

A. 3-Methyl-2-butanol

B. 3-Methyl-1-butanol

C. 2-Methyl-2-butanol

D. 2-Methyl-1-butanol

Answer: C

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48. n-Propyl chloride and benzene react in the presence of anhydrous $AlCl_3$ to form :

A. 2-Chloropropane

B. Propene

C. 2, 2-Dichloropropane

D. Propyne

Answer: A

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49. In the reaction

$$CH_3 - \underset{\underset{Br}{|}}{CH} - CH_3 \xrightarrow[KOH]{alc.} X \xrightarrow[\text{peroxide}]{HBr} Y \xrightarrow[\text{acetone}]{NaI} Z,\ Z \text{ is :}$$

A. $CH_3CH_2CH_2I$

B. $CH_3\underset{\underset{I}{|}}{C}HCH_3$

C. $CH_3CH = CHI$

D. $CH_3\underset{\underset{I}{|}}{C}HCH_2I$

Answer: A

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50. The reaction of tert, butyl bromide with sodium methaoxide produces mainly :

A. Isobutane

B. Isobutylene

C. t-Butyl methyl ether

D. Sodium tert, butoxide

Answer: B

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51. The molecular formula of a saturated compound is $C_2H_4Br_2$.

The formula permits the existence of two :

A. functional isomers

B. position isomers

C. optical isomers

D. cis-trans isomers

Answer: B

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52. Iodoform is formed when ethanol is heated with :

A. potassium iodide and sodium hydroxide

B. iodine and sodium hydroxide

C. chloroform and iodine

D. iodine and potassium iodide

Answer: B

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53. The isomer of C_7H_7Cl having weakest C-Cl bond is :

A. o-Chlorotoluene

B. m-Chlorotoluene

C. p-Chlorotoluene

D. Benzyl chloride

Answer: D

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54. In the reaction

Propene $\xrightarrow{HBr} A \xrightarrow{alc.KOH} B \xrightarrow[\text{Peroxide}]{HBr} C \xrightarrow{aq.KOH} D$, D is :

A. $CH_3CH_2CH_2OH$

B. $CH_3\underset{\underset{OH}{|}}{C}HCH_3$

C. CH_3CH_2COOH

D. CH_3CH_2CHO

Answer: A

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55. Which of the following is least reactive towards nucleophilic substitution reaction?

A. $C_6H_5CH_2Cl$

B. $C_6H_{13}Cl$

C. C_6H_5Cl

D. C_3H_7Cl

Answer: C

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56. When aniline is heated with chloroform and alcoholic KOH, a foul smelling product is formed. It is :

A. Benzonitrile

B. Phenyl isocyanate

C. Phenyl isocyanide

D. Phenol

Answer: C

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57. Slow oxidation of chloroform in air leads to the formation of :

A. formyl chloride

B. formic acid

C. $COCl_2$

D. `Trichloroacetic acid

Answer: C

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58. For converting aniline into chlorobenzene which of the following reagents is not used ?

A. Cl_2

B. HCl

C. HNO_2

D. $CuCl$

Answer: A

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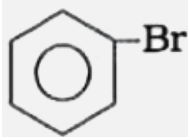
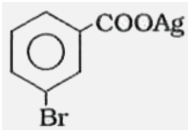
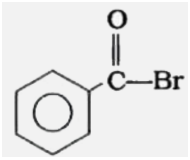
59. Silver benzoate will react with bromine in acetone to form :

A. 

B. 

C. 

D. 

Answer: B

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60. The final product formed by distilling ethyl alcohol with excess of Cl_2 and $Ca(OH)_2$ is :

A. CH_3CHO

B. CCl_3CHO

C. $CHCl_3$

D. $(CH_3)_2O$

Answer: C

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61. The reaction of t-butyl chloride and sodium ethoxide gies mainly :

A. t-butyl ethyl ether

B. 2, 2-dimethylbutane

C. 2-methyl prop-1-ene

D. isopropyl-n-propyl ether

Answer: C

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62. Propyl benzene reacts with bromine in the presence of light and heat to give :

A. 

B. 

C. 

D. 

Answer: D

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63. 1, 3-Dibromopropane reacts with metallic zinc to form :

A. Propene

B. Propane

C. Hexane

D. Cyclopropane

Answer: D

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64. The main product of the following reaction is :

A. Phenyl cyanide

B. Nitrophenol

C. Aniline

D. Hydroxylamine

Answer: C

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65. Which derivative of benzen among the following would undergo hydrolysis most readily with aqueous NaOH to give corresponding hydroxy derivative ?

A. 

B. 

C. 

D. 

Answer: A

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66. Which of the following can take part in nuclephilic as well as electrophilic substitution reactions?

A. Ethyl bromide

B. Vinyl chloride

C. Benzyl chloride

D. Alkyl chloride

Answer: C

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67. $(CH_3)_3CMgCl$ on reaction with D_2O produces :

A. $(CH_3)_3CD$

B. $(CH_3)_3COD$

C. $(CD_3)_3CD$

D. $(CD_3)_3COD$

Answer: A

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68. A positive carbylamine test is given by :

A. N, N-dimethylaniline

B. 2, 4-Dimethylaniline

C. N-methyl-o-methylaniline

D. methylbenzyl

Answer: B

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69. An S_N2 reaction at an asymmetric carbon of a compound always gives :

A. an enantiomer of the substrate

B. a product with opposite optical rotation

C. a mixture of diastereomers

D. a single stereoisomer

Answer: B

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70. How many enantiomeric pairs can be obtained by monobromination of isopentane?

A. 3

B. 1

C. 2

D. 4

Answer: B

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71. Which of the following factors favours S_N2 mechanism?

A. Polar solvent

B. Low conc. Of nucleophile

C. Strong nucleophile

D. 3° alkyl halide

Answer: C

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72. 1, 2-Dibromo propane on treatment with X moles of $NaNH_2$ followed by treatment with ethyl bromide gives a pentyne. The value of X is :

A. 1

B. 2

C. 3

D. 4

Answer: C

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73. The conversion of 2,3-dibromobutane to 2-butene with zinc and alcohol is :

A. Redox reaction

B. α-elimination

C. β-elimination

D. both α-elimination and redox reaction

Answer: C

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74. Chloropicrin is obtained by the reaction of :

A. nitric acid on chlorobenzene

B. chlorine on picric acid

C. nitric acid on chloroform

D. steam on carbon terachloride

Answer: C

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75. Which of the following undergoes nucleophilic substitution exclusively by S_N1 mechanism?

A. Benzyl chloride

B. Ethyl chloride

C. Chloro benzene

D. Isopropyl chloride

Answer: A

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76. The compound C_5H_{10} does not react with Cl_2 in dark but gives a single monochloro compound C_5H_9Cl. The hydrocarbon is :

A. Methyl cyclobutane

B. Cyclopentane

C. Pent-2-ene

D. 2, 2-Dimethyl propane

Answer: C

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77. For the following :

$I^-, Cl^-, Br^-,$

the increasing order of nucleophilicity would be :

A. $Cl^- < Br^- < I^-$

B. $I^- < Cl^- < Br^-$

C. $Br^- < Cl^- < F^-$

D. $I^- < Br^- < Cl^-$

Answer: A

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78. When neo pentyl bromide is subjected to Wurtz reaction, the product formed is :

A. 2, 2, 4, 4-tetramethylhexane

B. 2, 2, 4, 4-tetramethylpentane

C. 2, 2, 5, 5-tetramethylhexane

D. 2, 2, 3, 3-tetramethylhexane

Answer: C

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79. Which one of the following gives only one monochloro derivative?

A. n-hexane

B. 2-methylpentane

C. 2, 3-dimethylpentane

D. neo-pentane

Answer: D

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80. Which of the following reactions is an example of nucleophilic substitution reaction?

A. $2RX + Na \rightarrow R - R + 2NaX$

B. $RX + H_2 \rightarrow RH + HX$

C. $RX + Mg \rightarrow RMgX$

D. $RX + KOH \rightarrow ROH + KX$

Answer: D

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81. Toluene reacts with halogen in presence of Iron (III) chloride giving ortho and para halo compounds. The reaction is

A. Electrophilic elimination reaction

B. Electrophilic substitution reaction

C. Free radical addition reaction

D. Nucleophilic substitution reaction

Answer: B

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82. Which reagent will you use for the following reaction?

$$CH_3CH_2CH_2CH_3 \rightarrow CH_3CH_2CH_2CH_2Cl + CH_3CH_2CHClCH_3$$

A. Cl_2 / UV light

B. $NaCl + H_2SO_4$

C. Cl_2 gas in dark

D. Cl_2 gas in the presence of iron in dark

Answer: A

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83. Reaction of $C_6H_5CH_2Br$ with aqueous sodium hydroxide follows

A. S_N1 mechanism

B. S_N2 mechanism

C. Any of the above two depending upon the temperature of reaction

D. Saytzeff rule

Answer: A

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84. During the conversion:

$$C_6H_5CH_2CH_3 \xrightarrow{(a)} X \xrightarrow{(b)} C_6H_5CH=CH_2$$

the reagents (a) and (b) are respectively

A. $SOCl_2$, alc. KOH

B. Cl_2/hv, H_2O

C. SO_2Cl_2, aq. KOH

D. SO_2Cl_2, alc. KOH

Answer: D

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85. Vicinal and gem dihalides can be distinguished by

A. aq. KOH

B. Zn dust

C. alc. KOH

D. Br_2 water

Answer: A

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86. Which of the following are arranged in the decreasing order of dipole moment?

A. CH_3F, CH_3Cl, CH_3Br

B. CH_3Cl, CH_3F, CH_3Br

C. CH_3Br, CH_3Cl, CH_3F

D. CH_3Br, CH_3F, CH_3Cl

Answer: B

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87. The $C - H$ bond distance is longest in

A. C_2H_2

B. C_2H_4

C. C_2H_6

D. $C_2H_2Br_2$

Answer: C

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88. Arrange the following compounds in order of increasing dipole moment :

Toluene (I), m-dichlorobenzene (II),

o-dichlorobenzene (III), p-dichlorobenzene (IV)

A. $I < IV < II < III$

B. $IV < I < II < III$

C. $IV < I < III < II$

D. $IV < II < I < III$

Answer: B

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89. $H_3C - \underset{\underset{CH_3}{|}}{CH} - CH = CH_2 + HBr \rightarrow A$

A (predominantly) is :

A. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{Br}{|}}{C}} - CH_2CH_3$

B. $CH_3 - \underset{\underset{Br}{|}}{CH} - \underset{\underset{CH_3}{|}}{CH} - CH_3$

C. $CH_3 - \underset{\underset{CH_3}{|}}{CH} - \underset{\underset{Br}{|}}{CH} - CH_3$

D. $CH_3 - \underset{\underset{CH_3}{|}}{CH} - CH_2 - CH_2Br$

Answer: A

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90. IUPAC name of  is

A. 1, 1-Dimethyl-3-bromoethyl-5-chloropentane

B. 3-Bromomethyl-1-chloro-5-methylhexane

C. 1-Bromometyl-2-chloroethyl-4-methyl-pentane

D. 4-Bromomethyl-1-chloro-6-methylheptane

Answer: B

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91. 2-Bromobutane reacts with OH^- in H_2O to give 2-butanol. The reaction involves

A. retention in configuration

B. inversion in configuration

C. racemization

D. mutarotation

Answer: C

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92. When a primary amine reacts with $CHCl_3$ in the presence of ethanolic KOH, then the product is :

A. an isocyanide

B. an aldehyde

C. a cyanide

D. an alcohol

Answer: A

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93. Which of the following has highest nucleophilicity?

A. F^-

B. OH^-

C. CH_3^-

D. NH_2^-

Answer: C

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94. The order of reactivities of the following alkyl halides for a S_N2 reaction is :

A. $RF > RCI > RBr > RI$

B. $RF > RBr > RCI > RI$

C. $RCl > RBr > RF > RI$

D. $RI > RBr > RCl > RF$

Answer: D

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95. Which of the following compounds is not chiral?

A. 1-Chloro-2-methylpentane

B. 2-Chloropentane

C. 1-Chloropentane

D. 3-Chloro-2-methylpentane

Answer: C

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96. Alkyl halides react with lithium dialkyl copper reagents to give :

A. alkenes

B. alkyl copper halides

C. alkanes

D. alkenyl halides

Answer: C

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97. $CH_3Br + Nu^- \rightarrow CH_3Nu + Br^-$

The decreasing order of the rate of the above reaction with nucleophiles $\left(Nu^-\right)$ I to IV is :

$\left[Nu^- = (I)PhO^-, (II)AcO^-, (III)HO^-, (IV)CH_3O^-\right]$

A. $IV > III > II > I$

B. $I > II > III > IV$

C. $II > IV > III > I$

D. $IV > III > I > II$

Answer: D

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98. The organic chloro compound which shows complete stereochemical inversion during a S_N^2 reaction is

A. CH_3Cl

B. $(C_2H_5)_2CHCl$

C. $(CH_3)_3CCl$

D. $(CH_3)_2CHCl$

Answer: A

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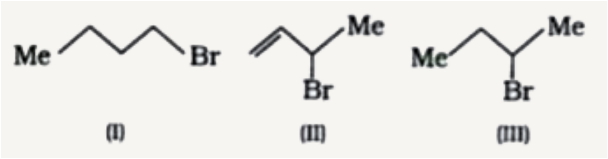
Mcq Level Iii

1. Consider the following bromides :



The correct ordder of S_N1 reactivity is :

A. $III > II > I$

B. $I > II > III$

C. $II > III > I$

D. $II > I > III$

Answer: C

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2. Iodoform can be prepared from all, except

A. Isobutyl alcohol

B. Ethyl methyl ketone

C. Isopropyl alcohol

D. 3-Methyl-2-butanone

Answer: D

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3. A solution of (-) -1-chloro-1-phenylethane in toluene racemises slowly in the presence of a small amount of $SbCl_5$, due to the formation of :

A. carbanion

B. carbene

C. carbocation

D. free radical

Answer: C

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4. In S_N2 reactions, the correct order of reactivity for the following compounds :

$CH_3Cl, CH_3CH_2Cl, (CH_3)_2CHCl$ and $(CH_3)_3CCl$ is :

A. $CH_3Cl > (CH_3)_2CHCl > CH_3CH_2Cl > (CH_3)_3CCl$

B. $CH_3Cl > CH_3CH_2Cl > (CH_3)_2CHCl > (CH_3)_3CCl$

C. $CH_3CH_2Cl > CH_3Cl > (CH_3)_2CHCl > (CH_3)_3CCl$

D. $(CH_3)_2CHCl > CH_3CH_2Cl > CH_3Cl > (CH_3)_3CCl$

Answer: B

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5. The synthesis of alkyl fluorides is best accomplished by :

A. Free radical fluorination

B. Sandmeyer's reaction

C. Finkelstein reaction

D. Swarts reaction

Answer: D

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Recent Examination Questions

1. IUPAC name of $(CH_3)_3CCl$

A. 3-Chlorobutane

B. 2-Chloro-2-methylpropane

C. t-butyl chloride

D. n-butyl chloride

Answer: B

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2. Which of the following is not true for S_N1 reaction ?

A. Favoured by polar solvents

B. 3°-alkyl halides generally react through S_N1 reaction

C. The rate of the reaction does not depend upon the molar concentration of the nucleophile

D. 1°-alkyl halides generally react through S_N1 reaction

Answer: D

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3. Methane can be converted into ethane by the reactions

A. chlorination followed by the reaction with alcoholic KOH

B. chlorination followed by the reaction with aqueous KOH

C. chlorination followed by Wurtz reaction

D. chlorination followed by decarboxylation

Answer: C

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4. An alkyl bromide (X) reacts with sodium in ether to form 4,5-diethyloctane, the compound 'X' is

A. $CH_3(CH_2)_3Br$

B. $CH_3(CH_2)_5Br$

C. $CH_3(CH_2)_3CH(Br)CH_3$

D. $CH_3-(CH_2)_2-CH(Br)-CH_2-CH_3$

Answer: D

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5. Which of the following pairs are correctly matched?

	Reactants	Products
I.	$RX+Ag(OH)(aq)$	RH
II.	$RX+AgCN(alc)$	RNC
III.	$RX+KCN(alc)$	RNC
IV.	$RX+Na(\text{ether})$	$R-R$

A. I alone

B. I and II

C. II and III

D. II and IV

Answer: D

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6. Cycloalkane formed when 1,4-dibromopentane is heated with sodium is

A. Methyl cyclobutane

B. Cyclopentane

C. cyclobutane

D. methyl cyclopentane

Answer: A

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7. The compound that reacts the fastest with sodium methoxide is

A. 

B. 

C. 

D. 

Answer: A

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8. In the given set of reactions :

2-Bromopropane $\xrightarrow[\text{alc./heat}]{AgCN} X \xrightarrow{LiAlH_4} Y$ the IUPAC name of product 'Y' is

A. Butan-2-amine

B. N-Methylpropanamine

C. N-Methylpropan-2-amine

D. N-Isopropylmethanamine

Answer: C

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9.

The product 'B' is :

A. 

B. 

C. 

D. 

Answer: A

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10. The arrangement of following compounds :

i. bromomethane ii.bromoform

iii. Chloromethane iv. Dibromomethane

In the increasing order of their boiling point is

A. $ii < iii < i < iv$

B. $iii < i < iv < ii$

C. $i < ii < iii < iv$

D. $iv < iii < i < ii$

Answer: B

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11. Ethanol when warmed with iodine and sodium carbonate gives a yellow coloured crystalline solid, which is used in preparation of antisepticointments. The yellow coloured crystalline substance is :

A. Chloroform

B. Iodoform

C. Carbon tetrachloride

D. Dichloromethane

Answer: B

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12. Which of the following compound is responsible for depletion of ozone layer ?

A. Freon

B. Chloroform

C. D.D.T.

D. Iodoform

Answer: A

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