CHEMISTRY

BOOKS - UNIVERSAL BOOK DEPOT 1960 CHEMISTRY (HINGLISH)

HALOGEN CONTAINING COMPOUND

Ordinary Thinking Objective Question Introduction Of Halogen Containing Compounds

1. Which of the following is a primary halide ?

A. Isopropyl iodide

B. Secondary butyl ioidide

C. Tertiary butyl bromine

D. Neo hexyl chloride

Answer: D

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2. Haloforms are trihalogen derivatives of

A. Ethane

B. Methane

C. Propane

D. Benzene

Answer: B

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3. In CH_3CH_2Br, % of Br is

A. 80

B. 75

C. 70

D. 7

Answer: B

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4. Number of $\pi -$ bonds present in B.H.C. (Benzene hexachloride) are

A. 6

B. zero

C. 3

D. 12

Answer: B

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5. Gem - dibromide is

A. $CH_3CH(Br)CH(Br)CH_3$

B. $CH_3CBr_2CH_3$

C. $CH_2(Br)CH_2CH_2$

D. CH_2BrCH_2Br

Answer: B

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6. How many structural isomers are possible for a compound with molecular formula C_3H_7Cl

A. 2

B. 5

C. 7

D. 9

Answer: A

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7. The compound which contains all the four 1°,2°, 3° and 4° carbon atoms is

A. 2,3-dimethyl pentane

B. 3-chloro-2,3-dimethylpentane

C. 2,3,4-trimethylpentane

D. 3,3-dimethylpentane

Answer: B

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8. IUPAC name DDT is

A. 1,1,1-trichloro-2,2-bis (p-chlorophenyl) ethane

B. 1,1-dichloro-2,2-dipphenyl trimehtylethane

C. 1,1-dichloro-2,2-diphenyl trichloroethane

D. None of these

Answer: A

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9. Benzylidene chloride is

A. $C_6H_5CH_2Cl$

B. $C_6H_5CHCl_2$

C. $C_6H_4ClCH_2Cl$

D. $C_6H_5CCl_3$

Answer: B

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10. Benzene hexachloride is:-

A. 1,2,3,4,5,6-hexachlorocyclohexane

B. 1,1,1,6,6,6-hexachlorocyclohexane

C. 1,6-phenyl-1,6-chlorohexane

D. 1,1-pheynyl-6,6-chlorohexane

Answer: A

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11. The general formulafor alkyl halides is

A. $C_nH_{2n+1}X$

B. $C_nH_{2n+2}X$

C. $C_nH_{n+1}X$

D. $C_nH_{2n}X$

Answer: A

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Ordinary Thinking Objective Question Preparation Of Halogen Containing Compounds

1. which of the following is obtained when chloral is boiled with NaOH ?

A. CH_3Cl

B. $CHCl_3$

C. CCl_4

D. None of these

Answer: B

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2. When ethyl alcohol (C_2H_5OH) reacts with thionyl chloride, in the presence of pyridine, the product obtained is

A. $CH_3CH_2Cl + HCl$

B. $C_2H_5Cl + HCl + SO_2$

C. $CH_3CH_2Cl + H_2O + SO_2$

D. $CH_3COCl + HCl + SO_2$

Answer: B

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3. Decreasing order of reactivity of HX in the reaction $ROH + HX \rightarrow RX + H_2O$

A. $HI > HBr > HCl > HF$

B. $HBr > HCl > HI > HF$

C. $HCl > HBr > HIgHF$

D. $HF > HBr > HCl > HI$

Answer: A

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4. The product formed on reation of ethyl alcohol with bleaching powder is .

A. $CHCl_3$

B. CCl_3CHO

C. CH_3COCH_3

D. CH_3CHO

Answer: A

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5. The following reaction is known as

$$C_2H_5OH + SOCI_2 \xrightarrow{\text{Pyridine}} C_2H_5CI + SO_2 + HCI$$

A. Kharasch effect

B. Darzen's procedure

C. Williamson's synthesis

D. Hunsdiecker synthesis reaction

Answer: B

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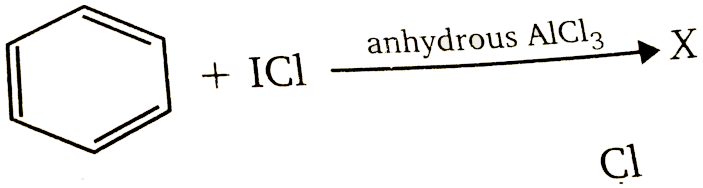
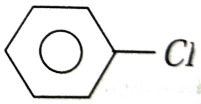
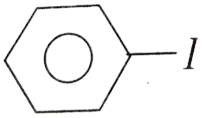
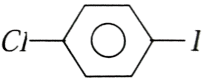
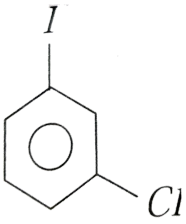
6. The compound X in the reaction.



A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: B

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7. Ethanol is converted into ethyl chloride by reacting with

A. Cl_2

B. $SOCl_2 / Py$

C. HCl

D. NaCl

Answer: B

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8. The compound formed on heating chlorobenzene with chloral in the presence of concentrated sulphuric acid, is:

A. Freon

B. DDT

C. Gammexane

D. Hexachloroethane

Answer: B

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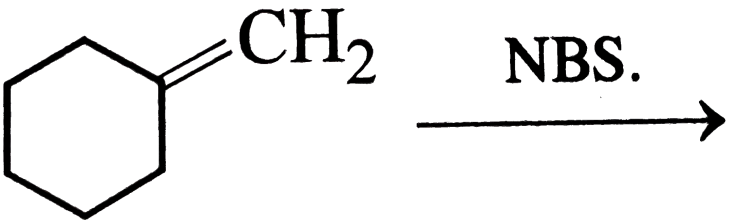
9. What will be the product in the following reaction ?



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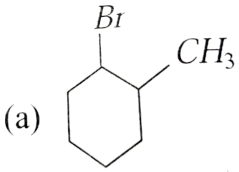

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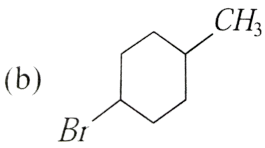

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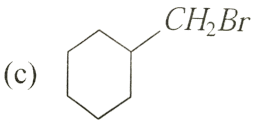
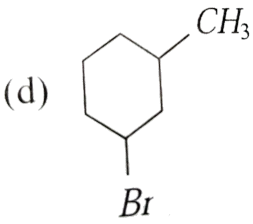


D.



Answer: A

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10. The starting substance for the preparation of CH_3I is

A. CH_3OH

B. C_2H_5OH

C. CH_3CHO

D. $(CH_3)_2CO$

Answer: A

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11. A grignard reagent may be made by reacting magnesium with

A. Methyl amine

B. Diethyl ether

C. Ethyl iodide

D. Ethyl alcohol

Answer: C

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12. Chlorine reacts with ethanol to give

A. Ethyl chloride

B. Chloroform

C. Acetaldehyde

D. Chloral

Answer: D

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13. $R-OH+HX \rightarrow R-X+H_2O$

In the above reaction the reactivity of different alcohols is

A. $Tertiary > \sec ondary > primary$

B. $Tertiary < \sec ondary < primary$

C. $Tertiary < \sec ondary > primary$

D. $\sec ondary < primary < tertiary$

Answer: A

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14. $C_3H_8+CI_2 \xrightarrow{Light} C_3H_7CI+HCI$ is an example of which of the following types of reactions ?

A. Substitution

B. Elimination

C. Addition

D. Rearrangement

Answer: A

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15. Which of the following organic compounds will give a mIxture of 1-chlorobutane and 2-chlorobutane on chlorintaion

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

B. $HC \equiv C - \overset{\overset{H}{|}}{C} = CH_2$

C. $CH_2 = CH - CH = CH_2$

D. $CH_2 = CH - CH_2 - CH_3$

Answer: B

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16. When ethyl alcohol and KI reacted in presence of Na_aCO_3 yellow crystals of ...are formed ? .

A. CHI_3

B. CH_3I

C. CH_2I_2

D. C_2H_5I

Answer: A

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17. Acetone is mixed with bleaching powder to give

A. Chloroform

B. Acetaldehyde

C. Ethanol

D. Phosgene

Answer: A

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18. Chlorobenzene is prepared commericially by

A. Raschig process

B. Wurtz fittig reaction

C. Friedel-Craft's reaction

D. Grignard reaction

Answer: A

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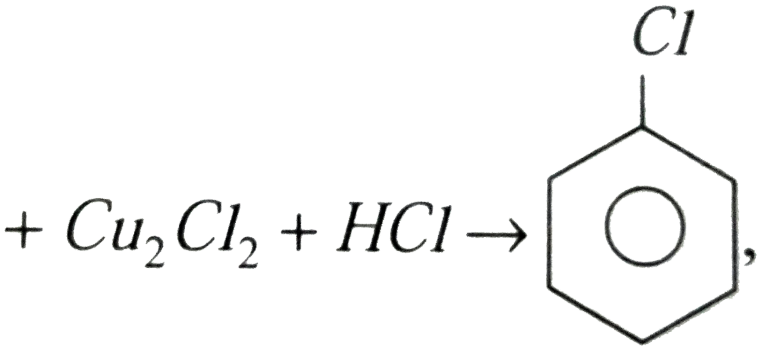
19. Diazonium salts



, the reaction is known as

A. Chlorination

B. Sandmeyer's reaction

C. Perkin reaction

D. Substitution reaction

Answer: B

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20. The addition of Br_2 to $Z-2$-butane gives

A. (R,R)-2,3-dibromo butane only

B. (S-S)-2,3-dibromo butane only

C. (R,S)-2,3-dibromo butane only

D. A mixture of (R R) and (S S)-2,3-dibromo butane (50%:50%)

Answer: D

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21. Which of the following is the correct method of preparation of methyl fluoride

A. $CH_4 + HF \rightarrow$

B. $CH_3OH + HF \rightarrow$

C. $CH_4 + F_2 \rightarrow$

D. $CH_3Br + AgF \rightarrow$

Answer: D

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22. Acetone reacts with I_2 in presence of $NaOH$ to from

A. C_2H_5I

B. $C_2H_4I_2$

C. CHI_3

D. CH_3I

Answer: C

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23. Which of the following acids adds to propene in the presence of peroxide to give anti-Markownikoff's product

A. HF

B. HCl

C. HBr

D. HI

Answer: C

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24. Which of the following reactions will yield 2,2-dibromopropane

A. $CH_3 - C \equiv CH + 2HBr \rightarrow$

B. $CH_3CH \equiv CHBr + HBr \rightarrow$

C. $CH \equiv CH + 2HBr \rightarrow$

D. $CH_3 - CH = CH_2 + HBr$

Answer: A

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25. Iodoform can be prepared from all except :

A. Ethyl methyl ketone

B. Isopropyl alcohol

C. 3-methyl-2-butanone

D. Isobuty alcohol

Answer: D

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26. Which compound needs chloral in its synthesis

A. D.D.T.

B. Gammexane

C. Chloroform

D. Michler's ketone

Answer: A

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27. In methyl alcohol solution, bromine reacts with ethyle (ethene) to yield $BrCH_2CH_2OCH_3$ in addition to 1, 2-dibromoethane because

A. The ion formed initially may react with Br^- or CH_3OH

B. The methyl alcohol solvates the bromine

C. The reaction follows Markownikoff's rule

D. This is a free-radical mechanism

Answer: A

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28. Silver Acetate + $Br_2 \xrightarrow{CS_2}$ Main Product . The major product of this reaction is

A. $CH_3 - Br$

B. CH_3COI

C. CH_3COOH

D. None of these

Answer: A

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29. Which of the following would be produced when acetylene reacts with HCl

A. CH_3CH_2Cl

B. CH_3CHCl_2

C. $CHCl = CHCl$

D. $CH_2 = CHCl$

Answer: B

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30. On treatment with chlorine in presence of sunlight toluene gives the product .

A. o-chloro toluene

B. 2,5-dichloro toluene

C. p-chloro toluene

D. Benzyl chloride

Answer: D

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31. Halogenation of alkenes is

A. A reductive process

B. An oxidative process

C. An isothermal process

D. An endothermal process

Answer: B

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32. Ethyl benzoate reacts with PCl_5 to give:

A. $C_2H_5Cl + C_6H_5COCl + POCl_3 + HCl$

B. $C_2H_5Cl + C_6H_5COCl + POCl_3$

C. $CH_3COCl + C_6H_5COCl + POCl_3$

D. $C_2H_5Cl + C_6H_5COOH + POCl_3$

Answer: B

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33. When chlorine is passed through warm benzene in presence of the sunlight the product obtained is .

A. Benzotrichloride

B. Chlorobenzene

C. Gammexane

D. DDT

Answer: C

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34. The catalyst used in the preparation of an alkyl chloride by the action of dry HCl on an alcohol is

A. Anhydrous $AlCl_3$

B. $FeCl_3$

C. Anhydrous $ZnCl_2$

D. Cu

Answer: C

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35. $X \xrightarrow{PCl_5} C_2H_5Cl, Y \xrightarrow{PCl_5} CH_3COCl$, X and Y are :

A. $(C_2H_5)_2O$ and CH_3CO_2H

B. C_2H_5I and C_2H_5CHO

C. C_2H_5OH and CH_3CO_2H

D. C_2H_5OH and C_2H_5CHO

Answer: C

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36. Ethyl bromide is industrially prepared from

A. Ethyl alcohol+HBr

B. Ethanol+Br_2

C. Alcohol+HBr

D. None of these

Answer: A

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37. preparation of alkyl halides in laboratory is least preferred by .

A. Halide exchange

B. Direct halogenation of alkanes

C. Treatment of alcohols

D. Addition of hydrogen halides to alkenes

Answer: B

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38. Assertion: Addition of Br_2 to c9s-but-2-ene is stereoselective.

Reason: S_{N^2} reactions are stereospecific as well as stereoselective.

A. If both assertion and reson are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: B

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39. Statement-I: Optically active 2-idoibutane on treatment with NaI in acetone undergoes racemisation.

Because Statement-II: Repeated Walden inversions on the reactant and its product evantually gives a racemic mixure.

A. If both assertion and reson are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: A

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40. What happens when CCl_4 is treated with $AgNO_3$

A. NO_2 will be evolved

B. A white ppt. of AgCl will be formed

C. CCl_4 will dissolve in $AgNO_3$

D. Nothing will happen

Answer: D

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41. 2-bromopentane is heated with postassium ethoxide in ethano1 The major product obtained is .

A. Pentene-1

B. cis pentane-2

C. trans pentene-2

D. 2-ethoxypentane

Answer: C

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42. If we use pyrene $(CCI)_4$ in the Riemer-Tiemann reaction in place of chloroform, the product formed is

A. Salicylaldehyde

B. Phenolphthalein

C. Salicylic acid

D. Cyclohexanol

Answer: C

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43. When chloroform is exposed to air and sunlight it gives

A. Carbon tetrachloride

B. Carbonyl chloride

C. Mustard gas

D. Lewsite

Answer: B

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44. Which is not present in Grignard reagent

A. methyl group

B. Magnesium

C. Halogen

D. $-COOH$ group

Answer: D

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45. $R - X + NaOH \rightarrow ROH + NaX$

The above reaction is classified as

A. Nucleophilic substitution

B. Electrophilic substitution

C. Reduction

D. Oxidation

Answer: A

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46. Reaction of $t - butyl$ bromide with sodium methoxide produces

A. Isobutane

B. Isobutylene

C. Sodium t-butoxide

D. t-butyl methyl ether

Answer: B

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47. A compound (A) has a molecular formula C_2Cl_3OH. It reduces Fehling's solution and on oxidation gives a monocarboxylilc acid (B). It can be obtained by the action of chlorine on ethyl alcohol, (A) is:

A. Chloral

B. $CHCl_3$

C. CH_3Cl

D. Chloroacetic acid

Answer: A

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48. An alkyl halide may be converted into an alcohol by :

A. Addition

B. Substitution

C. Dehydrogalogenation

D. Elimination

Answer: B

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49. When $CH_3CH_2CHCl_2$ is treated with $NaNH_2$ the product formed is

A. $CH_3 - CH = CH_2$

B. $CH_3 - C \equiv CH$

C. $CH_3CH_2CH(NH_2)(Cl)$

D. $CH_3CH_2C(NH_2)_2$

Answer: B

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50. Chloropicrin is obtained by the reaction of

A. Chlorine on picric acid

B. Nitric acid on chloroform

C. Steam on carbo tetrachloride

D. Nitric acid on chlorobenzene

Answer: B

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51. Which one is most reactive towards S_{N^1} reaction?

A. $C_6H_5CH_2Br$

B. $C_6H_5CH(C_6H_5)Br$

C. $C_6H_5CH(CH_3)Br$

D. $C_6H_5C(CH_3)(C_6H_5)Br$

Answer: D

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52. The correct order of increasing reactivity of C-X bond towards nucleophile in the following compounds is

A. IIIltIIltIltIV

B. IltIIltIVltIII

C. IIltIIIltIltIV

D. IVltIIIltIltII

Answer: B

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53. In the following reaction , $C_6H_5CH_2Br \xrightarrow[2.H_3O^+]{1.Mg,Ether} X$,

the product $'X'$ is

A. $C_6H_5CH_2OCH_2C_6H_5$

B. $C_6H_5CH_2OH$

C. $C_6H_5CH_3$

D. $C_6H_5CH_2CH_2C_6H_5$

Answer: C

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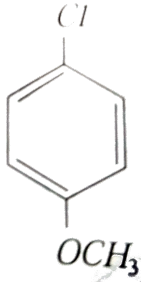
54. Which the following compound undergoes nucleophilic substitution reaction most easily

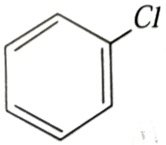
A.

(a)



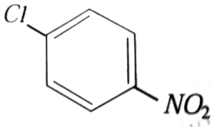
B.

(b)



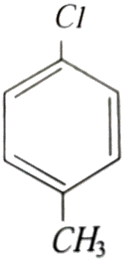
C.

(c)



D.

(d)



Answer: C

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55. In the following sequence of reactions:

$CH_3 - Br \xrightarrow{KCN} A \xrightarrow{\overset{+}{H_3O}} B \xrightarrow{LiAlH_4} C$ the end product (C) is :

A. Acetone

B. Methane

C. Acetaldehyde

D. Ethyl alcohol

Answer: D

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56. A sample of chloroform being used as anaesthetic is tested by .

A. Fehlig solution

B. Ammoniacal Cu_2Cl_2

C. $AgNO_3$ solution

D. $AgNO_3$ solution after boiling with alcoholi KOH solution

Answer: C::D

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57. Identify Z in the following series:

$$C_2H_5I \xrightarrow[\text{KOH}]{\text{Alcoholic}} \text{X} \xrightarrow{Br_2} \text{Y} \xrightarrow{\text{KCN}} Z$$

A. CH_3CH_2CN

B. $\begin{matrix} CH_2CN \\ | \\ CH_2CN \end{matrix}$

C. $BrCH_2 - CH_2CN$

D. $BrCH = CHCN$

Answer: B

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58. Among the following, one which reacts most readily with ethanol is

A. p-nitrobenzyl bromide

B. p-chlorobenzyl bromide

C. p-methoxybenzyl bromide

D. p-methylbenzyl bromide

Answer: C

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59. The major product formed in the reaction is:

$$CH_3 - \underset{\underset{H}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH_2Br \xrightarrow[CH_3OH]{CH_3O^{\ominus}}$$

A. $CH_3 - \underset{\underset{H}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH_3OCH_3$

B. $CH_3 - \underset{\underset{OCH_3}{|}}{C}\ H - CH_2CH_3$

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

D. $CH_3 - \overset{CH_3}{\underset{OCH_3}{\underset{|}{\overset{|}{C}}}} - CH_3$

Answer: D

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60. The major product obtained on treatment of $CH_3CH_2CH(F)CH_3$ with CH_3O^- / CH_3OH is :

A. $CH_3CH_2CH(OCH_3)CH_3$

B. $CH_3CH = CHCH_3$

C. $CH_3CH_2CH = CH_2$

D. $CH_3CH_2CH_2CH_2OCH_3$

Answer: B

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61. Which of the following compounds has the highest boiling point ?

A. $CH_3CH_2CH_2Cl$

B. $CH_3CH_2CH_2CH_2Cl$

C. $CH_3CH(CH_3)CH_2Cl$

D. $(CH_3)_3CCl$

Answer: B

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62. In a reaction of $C_6H_5 - CH_2 - Cl + KCN(aq)$ Compound X and Y are:-

A. $C_6H_6 + KCl$

B. $C_6H_5CH_2CN + KCl$

C. $C_6H_5CH + KCl$

D. None of these

Answer: B

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63. War gas is formed from

A. PH_3

B. C_2H_2

C. `Zinc phosphate

D. Chloroform

Answer: D

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64. On heating $CHCl_3$ with aq. NaOH, the product is:-

A. CH_3COOna

B. $HCOONa$

C. Sodium oxalate

D. CH_3OH

Answer: B

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65. When alkyl halide is heated with dry Ag_2O. It produces :

A. Ester

B. Ether

C. Ketone

D. Alcohol

Answer: B

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66. Alcoholic solution of KOH is used for ,

A. Dehydration

B. Dehydrogenation

C. Dehydrohalogenation

D. Dehalogenation

Answer: C

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67. The correct increasing order of the reactivity of halides for S_{N^1} reaction is:

A.

$$CH_3 - CH_3 - X < (CH_3)_2CH - X < CH_2 = CH - CH_2 - X <$$

B.

$$(CH_3)_2CH - X < CH_3 - CH_2 - X < CH_2 = CH - CH_2X < Ph$$

C.

$$PhCH_2 - X < (CH_3)_2CH - X < CH_3 - CH_2 - X < CH_2 = CH$$

D.

$$CH_2 = CH - CH_2 - X < Ph - CH_2 - X < (CH_3)_2CH - X < C$$

Answer: A

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68. Which of the following statements is incorrect

A. C_2H_5Br reacts with alco. KOH to form C_2H_5OH

B. C_2H_5Br when treated with metallic sodium gives ethane

C. C_2H_5Br when treated with sodium ethoxide forms diethyl ether

D. C_2H_5Br with $AgCN$ forms ehtyl isocynide

Answer: A::B

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69. A salt solution reacts with some drops of chloroform and the mixture is shaken with chlorine water. The chloroform layer becomes violet. Salt solution contains:

A. NO_2^- ion

B. NO_3^- ion

C. Br^- ion

D. I^- ion

Answer: D

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70. $2CHCI_3 + O_2 \xrightarrow{X} 2COCI_2 + 2HCI$

in the above reaction X stands for .

A. An oxidant

B. A reductant

C. Lighht and air

D. None of these

Answer: C

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71. The bad smelling substance formed by the action of alcoholic caustic potash on chloroform and aniline is .

A. Pheynyl isocynide

B. Nitrobenzene

C. Phenyl cyanide

D. Phenyl isocyanate

Answer: A

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72. Chlorobenzene on fusing with solid $NaOH$ gives

A. Benzene

B. Benzoic acid

C. Phenol

D. Benzene chloride

Answer: C

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73. Which of the following compounds will make precipitate most readily with $AGNO_3$?

A. CCl_3CHO

B. $CHCl_3$

C. $C_6H_5CH_2Cl$

D. CHI_3

Answer: D

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74. Phosgene is the common name for

A. CO_2 and PH_3

B. Phosphoryl chloride

C. Carbonyl chloride

D. Carbon tetrachloride

Answer: C

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75. When ethyl iodide is heated with silver nitrate the product obtained is

A. C_2H_5Ag

B. $Ag - O - NO_2$

C. $C_2H_5O - NO_2$

D. $C_2H_5I - NO_2$

Answer: C

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76. $C_6H_6CI_6$ on treatment with alcoholic KOH yields .

A. C_6H_6

B. $C_6H_3Cl_3$

C. $(C_6H_6)OH$

D. $C_6H_6Cl_4$

Answer: B

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77. Which of the following is liquid at room temperature

A. CH_3I

B. CH_3Br

C. C_2H_5Cl

D. CH_3F

Answer: A

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78. If 1,3- dibromopropane reacts with zinc and NaI, the product obtained is :

A. Propene

B. Propane

C. Cyclopropane

D. Hexane

Answer: C

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79. Hydrolysis of trichloromethane with aqueous KOH gives

A. Methanol

B. Acetic acid

C. Ethanol

D. Formic acid

Answer: D

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80. Two percent of ethanol is added during the oxidation of chloroform to stop the formation of carbonyl chloride In this reaction ethanol acts as

A. Auto catalyst

B. negative catalyst

C. Positive catalyst

D. None of these

Answer: B

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81. When ethyl bromide reacts with sodium acetylide the main product is

A. 1-butane

B. 1-butene

C. 1-butyne

D. 2-butene

Answer: C

Watch Video Solution

82. Iodoform is formed on warming iodine and sodium hydroxide with :

A. C_2H_5OH

B. CH_3OH

C. $HCOOH$

D. C_6H_6

Answer: A

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83. Which chloride is least reactive with the hydrolysis point of view

A. CH_3Cl

B. CH_3CH_2Cl

C. $(CH_3)_3CCl$

D. $CH_2 = CH - Cl$

Answer: D

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84. In alkaline hydrolysis of a tertiary halide by aqueous alkali, if concentration of alkali is doubled, then the reaction rate

A. Will be doubled

B. Will be halved will remain constant

C. Can't say

D.

Answer: C

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85. Which one of the following alkyl halides has the lowest boiling point

A. n-butyl chloride

B. Iso-butyl chloride

C. Sec-butyl chloride

D. Tert-butyl chloride

Answer: D

Watch Video Solution

86. Allyl chloride on dehydrochlorination gives:

A. Propadiene

B. Propylene

C. Acetylchloride

D. Acetone

Answer: A

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87. An alkyl bromide produces a single alkene when it reacts with sodium ethoxide and ethanol. This alkene undergoes hydrogenation and produces 2-methyl butane. What is the identity of the alkyl bromide

A. 1-bromo-2,2-dimethylpropane

B. 1-bromobutane

C. 2-bromo-2-methylbutane

D. 2-bromo-2-methylbutane

Answer: C

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88. In the solvolysis of 3-methyl-3-bromohexane, which of the following statements is not correct?

A. It involves carbocation intermediate

B. The intermediate involves sp^2 carbon

C. Polar solvents accelerates the reaction

D. It involves in version of configuration

Answer: D

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89. The hydrolysis of 2-bromo-3-methylbutane by S_{N^1} mechanism gives mainly:

A. 3-methyl-2-butanol

B. 2-methyl-2-butanol

C. 2,2-dimethyl-2-propanol

D. 2-methyl-1-butanol

Answer: B

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90. Chlorobenzene on treatment with sodium in dry ether gives diphenyl. The name of the reaction is

A. Fitting reaction

B. Wurtz-Fitting reaction

C. Sandemeyer reaction

D. Gatterman reaction

Answer: A

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91. A halide with formula $C_6H_{13}Br$ gave two isomeric alkenes A and B with formula C_6H_{12}. On reductive ozonolysis of mixture of A and B following compounds were obtained $CH_3COCH_3, CH_3CHO, CH_3CH_2CHO$ and $(CH_3)_2CHCHO$. Thehalide is

A. 2-bromohexane

B. 2,2--dimethyl-1-bromobutane

C. 4-bromo-2-methyylpentane

D. 3-bromo-2-methylpentane

Answer: D

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92. The compound that does not undergo hydrolysis by S_{N^1} mechanism is :

A. $CH_2 = CHCH_2Cl$

B. C_6H_5Cl

C. $C_6H_5CH_2Cl$

D. $C_6H_5CH(CH_3)Cl$

Answer: B

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93. Aryl halides do not undergo uncleophilic substitution reactions under ordinary conditions because

(1) Approach of nucleophile is retarded

(2) Carbon carrying halogen atom is sp^3 hybridised

(3) The substrate molecule is destabilised due to resonance

(4) Partial double bond character between carbon and halogen

A. 2 and 4 only

B. 1 and 4 only

C. 2 and 3 only

D. 2,3 and 4 only

Answer: B

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94. Which will undergo S_{N^2} reaction fastest amont the following halogen compounds

A. CH_3CH_2S

B. CH_3CH_2Cl

C. CH_3CH_2Br

D. CH_3CH_2I

Answer: D

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95. The decreasing order of boiling points of alkyl halides is

A. $RF > RCl > RBr > RI$

B. $RBr > RCl > RI > GF$

C. $RI > RBr > RCl > RF$

D. $RI > RF > RCl > RBr$

Answer: C

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96. Which one of the following compounds does not react with bromine

A. Ethylamine

B. Propene

C. Phenol

D. Chloroform

Answer: D

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97. Iodofrom heated with Ag powder to from

A. Acetylene

B. Ethylene

C. Methane

D. Ethane

Answer: A

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98. 2,6-Dimethylheptane on monochlorination produces . . . . . Derivatives

A. 5

B. 6

C. 3

D. 4

Answer: D

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99. Ethyl chloride on heating with AgCN fonns a compound (X). The functional isomer of (X) is:

A. C_2H_5NC

B. C_2H_5CN

C. $H_3C - NH - CH_3$

D. $C_2H_5NH_2$

Answer: B

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100. Consider the following reaction $C_2H_5Cl + AgCN \xrightarrow{\text{EtOH / } H_2O} X$ (Major)

Which one of the following statement is true for X?

A. It gives propionic acid on hydrolysis

B. It has an ester functional group

C. It has a nitrogen linked to ethyl carbon

D. It has a cyanide group

Answer: C

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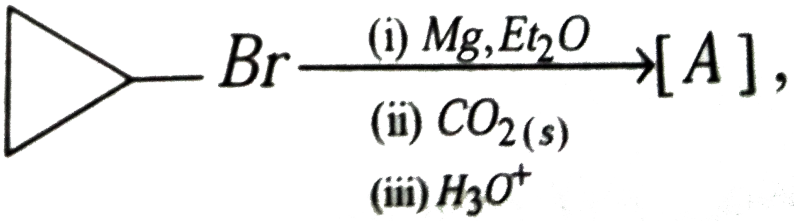
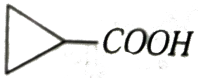
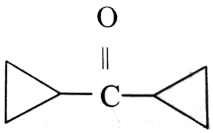
101. For the following reaction,

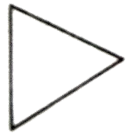


product [A] is

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: A

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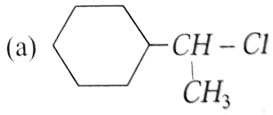
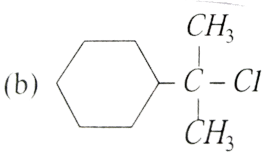
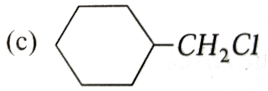
102. Which will undergo S_{N^2} reaction faster

A. 

B. 

C. 

D. 

Answer: C

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103. Which one of the following compounds cannot be used for the preparation of Grignard reagent

A. C_2H_5Br

B. $HO - CH_2CH_2Cl$

C. $C_6H_5CH_2Cl$

D. $CH_2 = CH - CH_2Cl$

Answer: B

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104. Ethylidene chloride on treatment with aqueous KOH gives .

A. Ethylene glycol

B. Acetaldehyde

C. Formaldehyde

D. None of these

Answer: B

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105. Ethyl bromide reacts with lead -sodium alloy to from

A. Tetraethyl lead

B. Tetraethyl bromide

C. Both (a) and (b)

D. None of these

Answer: A

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106. Which of the following gives a precipitate with $Pb(NO_3)_2$ but not with $Ba(NO_3)_2$?

A. Benzoic acid

B. Benzaldehyde

C. Benzene

D. None of these

Answer: B

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107. In presence of $AICI_3$ benzene and n-propyl bromide react in Friedel-Crafts reaction to from .

A. n-propyl benzene

B. 1,2-dinormal propyl benzene

C. 1,4-dinormal propyl benzene

D. Isopropyl benzene

Answer: D

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108. C-Cl bond of chlorobenzene in comparison to C-Cl bond of methyl chloride is

A. Longer and weaker

B. Shorter and weaker

C. Shorter and stronger

D. Longer and stronger

Answer: C

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109. Carbon-halogen bond is strongest among the following:

A. CH_3Cl

B. CH_3Br

C. CH_3F

D. CH_3I

Answer: C

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110. For a given alkyl group the densities of the halides follow the order

A. RIltRBrltRCl

B. RIltRCIltRBr

C. RBrltRIltRCl

D. RCIltRBrltRI

Answer: D

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111. Reduction of acetyl chloride with H_2 in presence of Pd gives

A. CH_3COCH_3

B. C_2H_5OH

C. CH_3COOH

D. CH_3CHO

Answer: D

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112. The reaction of an aromatic halogen compound with an alkyl halide in presence of sodium and ether is called

A. Wurtz reaction

B. Sandmeyer's reaction

C. Wurtz-fittig reaction

D. Kolbe reaction

Answer: C

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113. When chloroform is treated with amine and KOH , we get:

A. Rose smell

B. Sour almond smell

C. Sweety smell

D. Sour oil smell

Answer: D

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114. Chloroform reacts with the following compound to give a hypnotic

A. Phenol

B. $R - NH_2$

C. Acetone

D. HNO_3

Answer: C

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115. Which of the following is most reactive towards hydrolysis:-

A. $CH_2 = CH - Cl$

B. $CH_2 = CH - CH_2 - Cl$

C. C_6H_5Cl

D. $C_6H_5CH_2Cl$

Answer: D

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116. $C_2H_5CI + KCN \rightarrow X \xrightarrow{\text{Hydrolysis}} Y$. X and Y are

A. C_2H_6 and C_2H_5CN

B. C_2H_5CN and C_2H_6

C. C_2H_5CN and $C_2H_5CH_2NH_2$

D. C_2H_5CN and C_2H_5COOH

Answer: D

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117. Which of the following alkyl halides is used as a methylating agent ?

A. CH_3CI

B. C_2H_5Br

C. C_2H_5Cl

D. C_6H_5Cl

Answer: A

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118. Why is chloroform put into dark coloured bottles

A. To prevent evaporation

B. To prevent from moisture

C. To prevent in from oxidation to form phosgene

D. To prevent its reaction with glass

Answer: C

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119. Which isomer of cyclohexane hexachloride is a very strong insecticide

A. α

B. β

C. γ

D. δ

Answer: C

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120. The compound added to prevent chloroform to form phosgene gas is

A. C_2H_5OH

B. CH_3COOH

C. CH_3COCH_3

D. CH_3OH

Answer: A

View Text Solution

121. At normal temperature iodoform is

A. Thick viscous liquid

B. Gas

C. Volatile liquid

D. Solid

Answer: D

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122. Alkyl iodide react with NaCN to give alkyl cyanide and small amount of alkyl isocyanide. Formation of these two product is due to the

A. Ionic character of NaCN

B. Nucleophilic character of CN^-

C. Ambidentate character of CN^-

D. Electrophilic character of CN^-

Answer: C

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123. Following equation illustrates

$$C_6H_5CI + 2NaOH \xrightarrow[200atm]{200-250^\circ C} C_6H_5ONa + NaCI + H_2O$$

A. Dow's process

B. Kolbe's process

C. Carbylamine test

D. Haloform reaction

Answer: A

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124. False statement is

A. Chloroform is heavier than water

B. CCl_4 is non-inflammable

C. Vinyl chloride is more reactive than allyl chloride

D. Br^- is a good nucleophile as compared to I^-

Answer: C::D

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125. $CHCl_3$ and HF lead to the formation of a compound of fluorine of molecular weight 70. the compound is

A. Fluoroform

B. Fluorine monoxide

C. Fluorine dioxide

D. Fluoromethanol

Answer: A

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126. The correct order of C–X bond polarity is:

A. $CH_3Br > CH_3Cl > CH_3I$

B. $CH_3I > CH_3Br > CH_3Cl$

C. $CH_3Cl > CH_3Br > CH_3I$

D. $CH_3Cl > CH_3I > CH_3Br$

Answer: C

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127. Aryl halide is less reactive than alkyl halide towards nucleophilic substitution because

A. Less stable carbonum ion

B. Due to large C-Cl bond energy

C. Inductive effect

D. Resonance stabilization and sp^2-hybridisation of C attached to halide

Answer: D

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128. Which of the following reaction leads to the formation of chloritone

A. $CHCl_3 + CH_3COCH_3$

B. $CCl_4 +$ Acetone

C. $CHCl_3 + KOH$

D. $CHCl_3 + HNO_3$

Answer: A

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129. which of the following reaction doesn't give benzene

A. $C_6H_5N_2Cl \xrightarrow[H_2O]{\text{boiling}}$

B. $C_6H_5N_2Cl \xrightarrow[\Delta]{C_2H_5OH}$

C. $C_6H_5N_2Cl + H_3PO_2 + H_2O \rightarrow$

D. All of these

Answer: A

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130. Bottles containing C_6H_5I and $C_6H_5 - CH_2I$ lost their original lables. They were labelled A and B for festing. A and B were separately taken in a test tube and boiled with $NaOH$ solution. The end solution in each tube was made acidic with dilute HNO_3 and then some $AgNO_3$ solution was added. Substance B gave a yellow precipitate. Which one of the following statements is true for this experiment.

A. A was C_6H_5I

B. A was $C_6H_5CH_2I$

C. B was C_6H_5I

D. Addition of HNO_3 was unncessary

Answer: A

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131. Alkyl halides react with dialkyl copper lithium reagents to give

A. Alkenes

B. Alkyl copper halides

C. Alkanes

D. Alkenyl halides

Answer: C

View Text Solution

132. Reactio of trans 2-phynyl-1- bromocyclopentane on reaction with alcoholic KOH produces

A. 4-phenylchlopentene

B. 2-phenylcyclopentene

C. 1-phenylcyclopentene

D. 3-phenylcyclopentene

Answer: D

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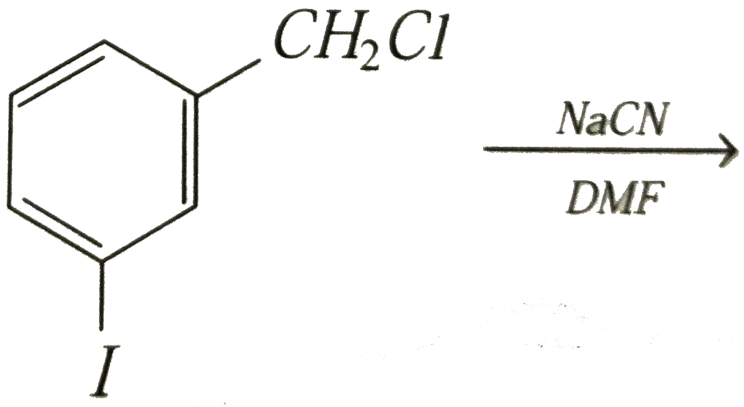
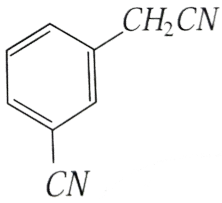
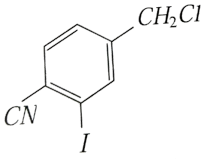
133. The structure of the major product formed in the following is



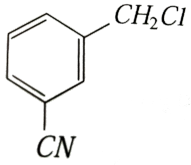
A. (a)

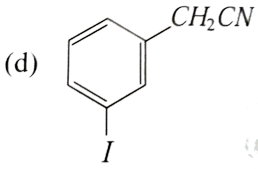


B. (b)



C. (c)



D. (d) 

Answer: D

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134. Fluorobenzene (C_6H_5F) can be synthesized in the laboratory ,

A. By heating phenol with HF and KF

B. Form aniline by diazotisation following by heating the diazonium salt with HBF_4

C. By direct fluorination of enzene with F_2 gas

D. By reacting bromobenzene with NaF solution

Answer: B

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

A. $(CH_3)_3CCl$

B. $(CH_3)_2CHCl$

C. CH_3Cl

D. $(C_2H_5)_2CHCl$

Answer: C

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136. Grignard reagent adds to :

A. $> C = O$

B. $> C \equiv N$

C. $> C = S$

D. All of these

Answer: D

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137. When chloroform is treated with excess oxygen it forms

A. $COCl_2 + HCl$

B. $COCl_2 + Cl_2 + H_2$

C. $COCl_2 + Cl_2 + H_2O$

D. No product will be formed

Answer: C

View Text Solution

138. $CH_3 - CH_2 - Br \xrightarrow{\text{Alc. } KCN} CH_3CH_2CN \xrightarrow{HOH} X$ I this reaction, product X is

A. Acetic acid

B. Propionic acid

C. Butyic acid

D. Formic acid

Answer: B

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139. The reaction conditions used for converting 1,2-dibromopropane to propylene are

A. KOH, alcohol/Δ

B. KOH,water/Δ

C. Zn, alcohol/Δ

D. Na, alcohol / Δ

Answer: C

View Text Solution

140. An alkyl halide by formation of formation of its Grignard reagent and heating with water yields propane. What is the original alkyl halide

A. Methyl iodide

B. Ethyl iodide

C. Ethyl bromide

D. Propyl bromide

Answer: D

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141. Alkyl halides undergoing substitution nucleophilic bimolecular reaction involves

A. Formation of carbocation

B. Racemic mixture

C. Inversion of configuration

D. Retention of configuration

Answer: C

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142. 2-Bromobutane reacts wit 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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143. Among the choices of alkyl bromide , the least reactive bromide in a S_{N^2} reaction is :

A. 1-bromopentane

B. 2-bromo-2-methylbutane

C. 1-bromo-3-methylbutane

D. 1-bromo-2-methylbutane

Answer: B

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144. Ethylene dichloride and ethylidine chloride are isomeric compounds. The false statement about these isomers is that they

A. React with alcoholic potash and give the same product

B. Are position isomers

C. Contain the same percentage of chloride

D. Are both hydrolysed to the same product

Answer: D

View Text Solution

145. $(X) + KCN \rightarrow CH_3CN \xrightarrow{2H_2/Ni} CH_3CH_2NH_2$

What is (X) ?

A. CH_3CH_2Cl

B. CH_3Cl

C. $CH_3CH_2CH_2Cl$

D. $(CH_3)_2CHCl$

Answer: B

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146. Mesodibromobutane on debromination gives

A. Trans-2-butene

B. Cis-2-butene

C. 1-butene

D. 1-butyne

Answer: B

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147. The reactivity of halogen atom is minimum in

A. Propyl chloride

B. Propyl iodide

C. Isopropyl chloride

D. Isopropyl bromide

Answer: C

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148. The reactivity of ethyl chloride is

A. More or less equal to that of benzyl chloride

B. More than that of benzyl chloride

C. More or less equal to that of chlorobenzene

D. less than that of chlorobenzene

Answer: B

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149. An mixture of two organic chlorine compounds was treated with sodium metal in ether solution. Isobutane was obtained as a product. The two chlorine compounds are:

A. Methyl chloride and propyl chloride

B. Methyl chloride and ethyl chloride

C. isopropyl chloride and methyl chloride

D. Isopropyl chloride and ethyl chloride

Answer: C

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150. The reactivities of methy chloride propyl chloride and chlorobenzene are in the order

A. Methyl chloridegtpropyl chloridegtchlorobenzene

B. Propyl chloridegtmethyl chloridegtchlorobenzene

C. Methyl chloridegtchlorobenzenegtpropyl chloride

D. Chlorobenzene gt propyl chloridegtmethyl chloride

Answer: A

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151. Ethyl bromide can be convertd into ethyl alcohol by

A. heating with dilute hydrochloric acid and zinc

B. Boiling with an alcoholic solution of KOH

C. The action of moist silver oxide

D. Refluxing methanol

Answer: C

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152. Salicylic acid can be prepared using Reimer-Tiemann's reaction by treatng phenol with

A. Methyl chloride in presence of anhydrous aluminium chloride

B. Carbon dioxide under pressure in sodium hyroxide solution

C. Carbon tetrachloride and concentrated sodium hydroxide

D. Sodium nitrite and a few drops of concentrated sulphuric acid

Answer: C

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153. Carbylamine is liberated when .....is heated with chloroform and alcoholic potash

A. An aldehyde

B. A primary amine

C. A secondary amine

D. A phenol

Answer: B

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154. What is the product formed in the following reaction ?

$$C_6H_5OH + CCl_4 \xrightarrow[(ii)\, H_3O^+]{(i)\, NaOH}$$

A. p-hydroxybenzoic acid

B. o-hydroxybenzoic acid

C. Benzaldehyde

D. Salicylaldehyde

Answer: B

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155. Which of the following is used as catalyst for preparing Grignard reagent

A. Iron powder

B. Iodine powder

C. Activated charcoal

D. Manganese dioxide

Answer: B

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156. The set of compounds in which the reactivity of halogen atom in the ascending order is .

A. Vinyl chloride, chlorethane, chlorobenzene

B. vinyl chloride, chlorobenzene, chloroethane

C. Chloroethane, chlorobenzene, vinly chloride

D. chlorobenzene, vinyl chloroethane

Answer: D

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157. Which of the following statements about benzyl chloride is incorrect ?

A. It is less reactive than alkyl halides

B. It can be oxidised to benzaldehyde by boiling with copper nitrate solution

C. It is a lachrymatory liquid and asnwers Beilstein's test

D. It gives a white precipitate with alcoholic silver nitrate

Answer: A

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158. The order of reactivities of methyl halide in the formation of Grignard reagent is

A. $CH_3I > CH_3Br > CH_3Cl$

B. $CH_3Cl > CH_3Br > CH_3I$

C. $CH_3Br > CH_3Cl > CH_3I$

D. $CH_3Br > CH_3I > CH_3Cl$

Answer: A

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159. An organic compound on heating with CuO produces CO_2 but no water. The organic compound may be

A. Chloroform

B. Methane

C. Ethyl iodide

D. Carbon tetrachloride

Answer: D

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160. In which case formation of butane nitrile is possible ?

A. $C_3H_7Br + KCN$

B. $C_4H_9Br + KCN$

C. $C_3H_7OH + KCN$

D. $C_4H_9OH + KCN$

Answer: A

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161. Reaction of methyl bromide with aqueous sodium hydroxide involves

A. Reacemisation

B. S_{N^1} mechanism

C. Inversion of configuration

D. S_{N^2} mechanism

Answer: C::D

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162. Which of the following is not formed when a mixture of methyl bromide and bromobenzene is heated with sodium metal in the presence of dry ether?

A. Ethane

B. Diphenyl

C. Propane

D. Toluene

Answer: C

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163. Alkyl halide can be converted into alkene by

A. Nucleophilic substitution reaction

B. Elimination reaction

C. Both nucleophilic substitution and elimination reaction

D. Rearrangement

Answer: B

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164. 2-Methylpropane on monochlorination under photochemical conditions give

A. 2-chloro-2-methylpropane as major product

B. (1:1) mixture of 1-chloro-2-methylpropane and 2-chloro-2-methylpropane

C. 1-chloro-2-methylpropane as a major product

D. (1:9) mixture of 1-chloro-2-methylpropane and 2-chloro-2-methylpropane

Answer: C

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165. Under identical conditions, the S_{N^1} reaction will occur most efficiently with

A. Tert-butyl chloride

B. 1-chlorobutane

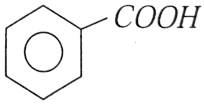
C. 2-methyl-1-chloropropane

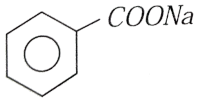
D. 2-chlorobutane

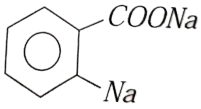
Answer: A

Watch Video Solution

166. Toluene reacts with excess of CI_2 in presence of sunlight to give a product which on hydrolysis followed by reaction with $NaOH$ gives .

A. (a) 

B. (b) 

C. (c) 

D. None of these

Answer: B

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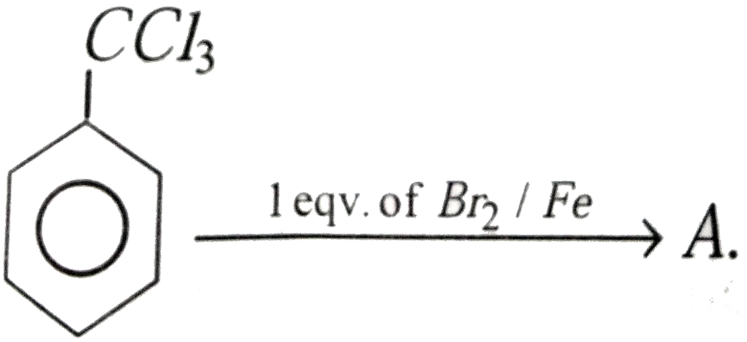
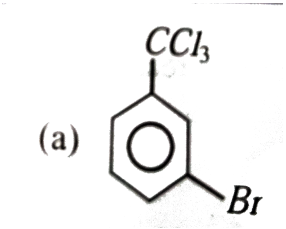
167.

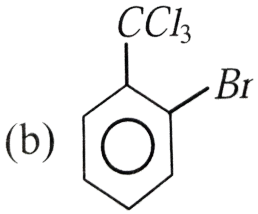


Compound A is

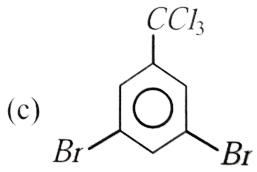
A.

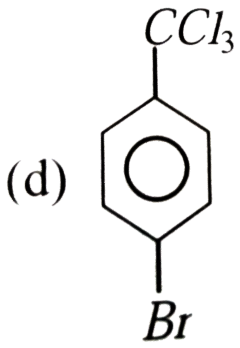


B.



C.



D. 

Answer: A

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168. Identify X and Y in the following sequence

$$C_2H_5Br \xrightarrow{X} \text{product} \xrightarrow{Y} C_3H_7NH_2$$

A. $X = KCN, Y = LiAlH_4$

B. $X = KCN, Y = H_3O^+$

C. $X = CH_3Cl, Y = AlCl_3HCl$

D. $X = CH_3NH_2, Y = HNO_2$

Answer: A

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169. Alkyl halides are less soluble in water because

A. They ionise in water

B. They do not form H- bonds with water

C. They are highly viscous

D. They have very strong C-X bond

Answer: B

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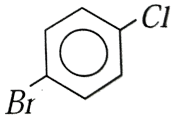
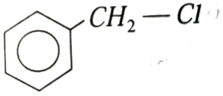
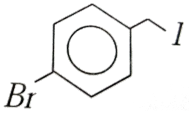
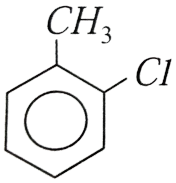
170. Which of the following will give yellow precipitate on shaking with an aqueous solution of NaOH followed by acidification with dil. HNO_3 and addition of $AgNO_3$ solution

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: C

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171. $CH_3 - CH_2 - Br$ on treatment with $LiAlH_4$ gives ethane gas while $(CH_3)_3C - Br$ on same treatment gives H_2 gas because

A. The former is S_{N^2} and later is E2 reaction

B. The former is E2 an later is S_{N^2} reaction

C. The former is S_{N^1} and later is E2 reaction

D. The former is E2 and later is S_{N^1} reaction

Answer: A

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172. Which of the following can give iodoform test ? `

A. $CI_3COCH_2CH_3$

B. CH_3CH_2OH

C. CH_3CH_2CHO

D. Both (a) and (b)

Answer: A

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173. The order of rate of hydrolysis of alkyl halides $1^\circ, 2^\circ, 3^\circ$ and CH_3X by the S_{N^2} pathway is :

A. $1^\circ > 2^\circ > 3^\circ > CH_3X$

B. $CH_3X > 3^\circ > 2^\circ > 1^\circ$

C. $CH_3X > 1^\circ > 2^\circ > 3^\circ$

D. $3^\circ > 2^\circ > 1^\circ > CH_3X$

Answer: C

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174. Chloroform with zinc dust in water gives:

A. CH_4

B. Chloropicrin

C. CCl_4

D. CH_2Cl_2

Answer: A

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175. When alkyl halides reaction with aromatic compounds in presence of anhydrous $AlCl_3$, the reaction is known as

A. Friedal-Craft reaction

B. Hofmann degradation

C. Kolbe's synthesis

D. Beckmann rearrangement

Answer: A

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176. An organic halide is shaken with aqueous NaOH followed by the addition of dil HNO_3 and silver nit rate solution gave white ppt The

substane can be .

A. $C_6H_4(CH_4)Br$

B. $C_6H_5CH_2Cl$

C. C_6H_5Cl

D. None of these

Answer: B

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177. In the following sequence of reactions,

$CH_3CH_2CH_2Br \xrightarrow{\text{KOH}(Alc)} (\text{A}) \xrightarrow{\text{HBr}} (\text{B}) \xrightarrow{\text{KOH}(aq)}$ (C) The product (C) is

A. Propan-2-ol

B. Propan-1-ol

C. Propyne

D. Propene

Answer: A

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178. Vincyl chloride reacs with HCl to form

A. 1,1-dichloro ethane

B. 1,2-dichloro ethane

C. Tetrachloro ethylene

D. Mixture of 1,2 and 1,1-dichloro ethane

Answer: A

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179. Methyl chloride reacts with silver acetate to yield

A. Acetaldehyde

B. Acetyl chloride

C. Methyl acetate

D. Acetic acid

Answer: C

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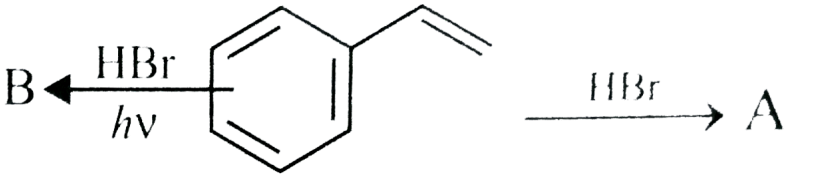
180. Analyes the following reaction and identify the nature of $A$and B



A. (a) Both A and B are 

B. 

C. (c) A is  and B is 

D. 

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181. Which one is the Swarts reaction from the following ?

A. $CH_3Br + NaI \rightarrow CH_3I + NaCl$

B. $CH_3Br + Nal \rightarrow CH_3l + NaBr$

C. $CH_3Br + AgF \rightarrow CH_3F + AgBr$

D. $2CH_3Cl + 2Na \rightarrow CH_3.CH_3 + 2NaCl$

Answer: C

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182. Chlorobenzene is .

A. Less reactive than benzyl chloride

B. More reactive than ethyl bromide

C. Nearly as reactive as methyl chloride

D. More reactive than isopropyl chloride

Answer: A

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183. The dehydrobromination of 2bromobutane give

$CH_3CH = CHCH_3$ The product is .

A. Hofmann product

B. Saytzeff product

C. Hofmann-Saytzeff product

D. Markownikoff product

Answer: B

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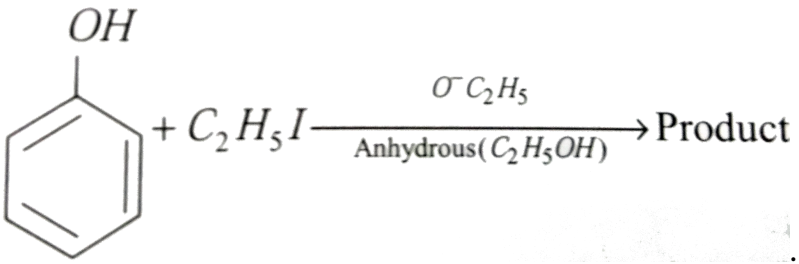
184. 

In the above reaction product is:-

A. $C_6H_5OC_2H_5$

B. $C_2H_5OC_2H_5$

C. $C_6H_5OC_6H_5$

D. C_6H_5I

Answer: A

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185. Dehydrohalogenation in monohaloalkanes produces

A. A single bond

B. A double bond

C. A triple bond

D. Fragmentation

Answer: B

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186. Which of these do not underg Wurtz reaction

A. C_2H_5F

B. C_2H_5Br

C. C_2H_5Cl

D. C_2H_5I

Answer: A

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187. Statement-I: Nucleophilic substitution reaction on an optically active alkyl halide gives a mixture of enantiomers.

Because Statement-II: The reaction occurs by S_{N^1} mechanism.

A. If both Assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. if assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: A

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188. Assertion: Alkyl halides are soluble in organic solvents.

Reason: p-dichlorobenzene possesses low melting point.

A. If both Assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. if assertion is true but reason is false.

D. if assertion is false but reason is true

Answer: C

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189. Assertion: Alkyl halides form alkenes when heated above 300° C

Reason Ch_3CH_2 I reacts slowly with strong base when compared to CD_3CH_2 i.

A. If both Assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. if assertion is true but reason is false.

D. if assertion is false but reason is true

Answer: C

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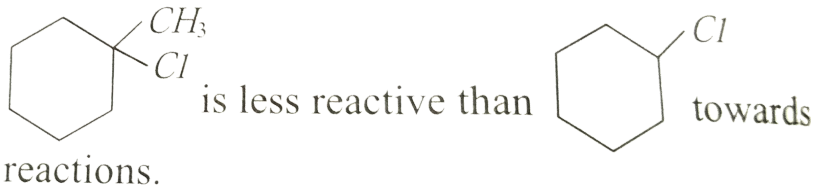
190. Assertion: 

Reason: Tertiary alkyl halides react predominantly by S_{N^1} mechanism.

A. If both Assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. if assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: D

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191. Assertion: Electron withdrawing groups in aryl halides decrease the reactivity towards nucleophilic substitution.

Reason: 2,4-Dinitrochlorobenzene is less reactive than chlorobenzene.

A. If both Assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. if assertion is true but reason is false.

D. if assertion is false but reason is true

Answer: D

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192. Which of the following reaction(s) can be used for the preparation of alkyl halides?

(I) $CH_3CH_2OH + HCl \xrightarrow{anhy.\,ZnCl_2}$

(II) $CH_3CH_2OH + HCl \rightarrow$

(III) $(CH_3)_3COH + HCl \rightarrow$

(IV) $(CH_3)_2CHOH + HCl \xrightarrow{anhy.\,ZnCl_2}$

A. A,C and D only

B. A and B only

C. D only

D. C and D only

Answer: A

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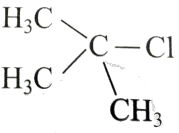
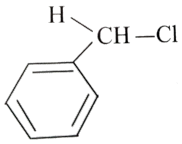
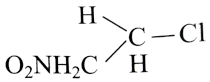
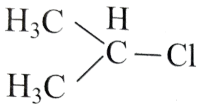
193. In which of the following compounds, the C-Cl bond ionisation shall give most stable carbonium ion

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: A

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194. Consider the reaction :

$CH_3CH_2CH_2Br + NaCN \rightarrow CH_3CH_2CH_2CN + NaBr$

This reaction will be the fastest in :

A. Water

B. Ethanol

C. methanol

D. N,N'-dimethylformamide (DMF)

Answer: D

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1. Freon (dichlorodifluoro methane) is used .

A. As local anaesthetic

B. For dissolving impurities in metallurgical process

C. In refrigerator

D. In printin inductry

Answer: C

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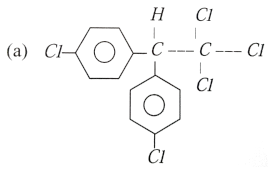
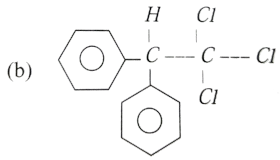
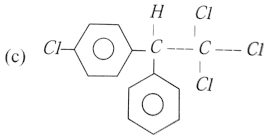
2. Which one of the following is the correct formula of dichlorodipheyl trichloroethane ? .

A. 

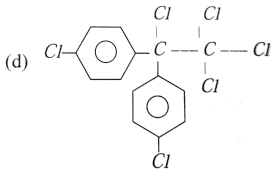
B.



C.



D.



Answer: A

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3. Which of the following is known as freon which is used as a refrigerant ? .

A. CCl_2F_2

B. $CHCl_3$

C. CH_2F_2

D. CF_4

Answer: A

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4. Which of these can be used as moth repellant

A. Benzene hexachloride

B. Benzal chloride

C. Hexachloroethane

D. Tetrachloroethane

Answer: C

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5. Which of the following is an anaesthetic

A. C_2H_4

B. $CHCl_3$

C. CH_3Cl

D. C_2H_5OH

Answer: B

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6. Benzene hexachloride (BHC) is used as :

A. Dye

B. Antimalarial drug

C. Antibiotic

D. Insecticide

Answer: D

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7. CCl_4 is a well known fire extinguisher. However after using it to extinguish fire the room should be well ventilated. This is because:

A. it is flammable at higher temperature

B. It is toxic

C. It produces phosgene by reaction with water vapour at higher temperature

D. It is corrosive

Answer: C

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8. Iodoform is used as an:

A. Anaesthetic

B. antiseptic

C. Analgesic

D. Antifebrin

Answer: B

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9. In fire extinguisher, pyrene is

A. CO_2

B. CCl_4 is non-inflammable

C. CS_2

D. $CHCl_3$

Answer: B

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10. What is the reagent used for testing fluoride ion in water

A. Alizarin-S

B. Quinalizarin

C. Phenolphthalein

D. Benzene

Answer: A

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11. CCl_4 and freons :

A. Are gree compounds because they are green coloured

B. Depletes ozone concentration

C. Causes increase in ozone concentration

D. have no effect on ozone concentration

Answer: B

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12. Statement “Ozone in atmosphere is decreased by emission of chloro-fluoro-carbons like CCl_2F_2 ”

A. It true

B. Is false

C. Only in presence of CO_2

D. Anaesthetic

Answer: A

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13. The use of the product obtained as a result of reaction between acetone and chloroform is:

A. Hypnotic

B. Antiseptic

C. Germicidal

D. Anaesthetic

Answer: A

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14. CF_xCI_y [Where x + y =4] These compounds are not used because

A. These are fluoro carbons

B. These are difficult to synthesise

C. They depelete ozone layer

D. None of these

Answer: C

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15. An important insecticide is obtained by the action of chloral on chlorobenzene. It is

A. BHC

B. Gammexane

C. DDT

D. Lindane

Answer: C

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16. Use of chlorofluorocarbons is NOT encouraged because _____.

A. They are harmful to the eyes of people that use it

B. They damage the refrigirators and air conditioners

C. They eat away the ozone I thhe atmopshere

D. they destroy the oxygen layer

Answer: C

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17. Chloropicrin is used as

A. Solvent

B. Anaesthetic

C. Perfume

D. Tear gas

Answer: D

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18. The compound $(CH_3)_2.\overset{OH}{\overset{|}{C}}CCl_3$ is

A. Chloretone

B. Chloroquin

C. chloropicrin

D. Chloropropyl chloride

Answer: A

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19. Which plastic is obtained from $CHCl_3$ as follows .

$$CHCl_3 \xrightarrow[SbF_3]{HF} X \xrightarrow{800^\circ C} Y \xrightarrow{\text{polymerisation}} Plastic\,.$$

A. Bakelite

B. Teflon

C. Polythene

D. Perspex

Answer: B

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20. The total number of stereoisomeric forms of $C_6H_6Cl_6$ known is

A. 6

B. 7

C. 8

D. None of these

Answer: C

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21. Assertion: $CHCl_3$ is stored in transparent bottles.

Reason: $CHCl_3$ is oxidised in dark.

A. If both Assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. if assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: D

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22. Assertion: CCl_4 is not a fire extinguisher.

Reason: CCl_4 is insoluble in water.

A. If both Assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. if assertion is true but reason is false.

D. If assertion is false but reason is true

Answer: D

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Critical Thinking Objective Questions

1. Replacement of Cl of chlorobenzene to give phenol require drastic conditions but chlorine of $2,4$-dinitrochlorobenzene is readily replaced because .

A. NO_2 make ring electron rich at ortho and para

B. NO_2 withdrawn e^- from metal position

C. $-NO_2$ donates e^- at meta position

D. NO_2 withdraws e^- from ortho/para position

Answer: D

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2. Among the following the most reactive towards alcoholic KOH is

A. $CH_2 = CHBr$

B. $CH_3COCH_2CH_2Br$

C. CH_3CH_2Br

D. $CH_3CH_2CH_2Br$

Answer: B

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3. Among the following one with the highest percentage of chlorin is .

A. Chloral

B. Pyrene

C. PVC

D. Gammexane

Answer: B

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4. Which of the follwing is the example of S_N2 reaction .

A. $CH_3Br + OH^- \rightarrow CH_3OH + Br^-$

B. $\underset{\underset{Br}{|}}{CH_3CHCH_3} + OH^- \rightarrow \underset{\underset{OH}{|}}{CH_3CHCH_3} + Br^-$

C. $CH_3CH_2Oh \xrightarrow{-H_2O} CH_2 = CH_2$

D. $CH_3 - \underset{\underset{Br}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH_3 + OH^- \rightarrow CH_3 - \underset{\underset{H}{|}}{\overset{\overset{CH_3}{|}}{C}} - O - CH_3 + Br^-$

Answer: A

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5. Which of the following possess highest m.pt .

A. Chlorobenzene

B. o-dichlorobenzene

C. m-dichlorobenzene

D. p-dichlorobenzene

Answer: D

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6. An organic compound $A(C_4H_6CI)$ on reation withNa/diethyl ether gives a hydrocarbon which on monochlorination gives only one chloro derivative A is .

A. t-butyl chloride

B. s-buthyl chloride

C. isobutyl chloride

D. n-butyl chloride

Answer: A

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7. A dihalogen dervative 'X' of a hydrocarbon with three carbon atoms reacts with alcoholic KOH and produces another hydrocarbon which forms a red precipitate with ammoniacal Cu_2Cl_2. $'X'$ gives an aldehyde on reaction with aqueous KOH. The compound 'X' is :

A. 1,3-dichloropropane

B. 1,2-dichloropropane

C. 2,2-dichloropropane

D. 1,1-dichloropropane

Answer: D

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8. Wurtz reaction of methyl iodide yields an organic compound X. Which one of the following reactions also yields X?

A. $C_2H_5Cl + Mg \xrightarrow{\text{dry ether}}$

B. $C_2H_5Cl + LiAlH_4 \rightarrow$

C. $C_2H_5Cl + C_5H_5ONa \rightarrow$

D. $CHCl_3 \xrightarrow[\Delta]{\text{Ag powder}}$

Answer: B

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9. Ethyl orthoformate is formed by heating with sodium ethoxide .

A. $CHCl_3$

B. C_2H_5OH

C. $HCOOH$

D. CH_3CHO

Answer: A

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10. The hybridization state of carbon atoms in the product formed by the reactions of ethyl chloride with aqueous potassium hydroxide is .

A. sp

B. sp^2

C. sp^3

D. sp^3d

Answer: C

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11. In which one of the following conversions phosphorus pentachloride is used as a reagent?

A. $H_2C = CH_2 \rightarrow CH_3CH_2Cl$

B. $H_3C - O - CH_3 \rightarrow CH_3Cl$

C. $CH_3CH_2OH \rightarrow CH_3CH_2Cl$

D. $HC \equiv CH \rightarrow CH_2 = CHCl$

Answer: B::C

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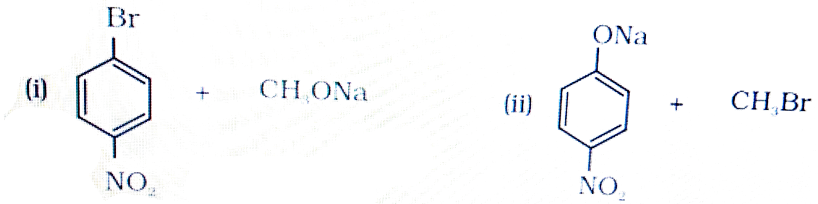
12. Which of the following is an appropriate set of reactants for the preparation of 1-methoxy-4-nitrobenzene and why?



A. A

B. B

C. Both A and B

D. None of these

Answer: C

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13. When but $-3-en-2-ol$ reacts with $aqHBr$, we get

A. 3-bromobut-1-ene

B. 1-bromobut-2-ene

C. A mixture of both (a) and (b)

D. 2-bromobut-2-ene

Answer: C

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14. Which one of the following methods is used to prepare Me_3COEt with a good yield ?

A. Mixing EtONa with Me_3CCl

B. Mixing Me_3CONa with EtCl

C. heating a mixture of (1:1) EtOH and Me_3COH in presence of conc. H_2SO_4

D. Treatment of Me_3COH withh EtMgI

Answer: B

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15. The odd decomposition of carbon chlorine bond from

A. Two free ions

B. two-carbonium ion

C. Two carbanion

D. A cation and an anion

Answer: D

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16. An isomer of $C_3H_6CI_2$ on boiling with aqueous KOH gives acetone Hence the isomer is

A. 2,2-dichloropropane

B. 1,2-dichloropropane

C. 1,1-dichloropropane

D. 1,3-dichloropropane

Answer: A

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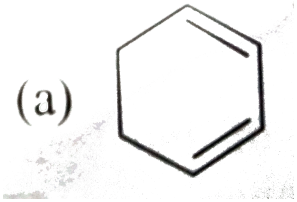
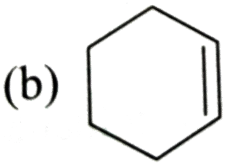
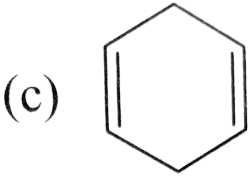
17. 1,2 di bromo cyclohexane on dehydrohalogenation gives

A. 

B. 

C. 

D. None of these

Answer: A

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18. Which chlorine atom is more electronegative in the following ?

A. $CH_3 - Cl$

B. $CH_3 - CH_2 - Cl$

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

D. $CH_3 - CH_2 - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}} - Cl$

Answer: D

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19. Which conformation of $C_6H_6Cl_6$ is most powerful insecticide

A. aaeeee

B. aaaeee

C. aaaaee

D. aaaaaa

Answer: B

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20. Diethyl ether on heating with conc. HI gives two moles of

A. Ethanol

B. Iodoform

C. Ethyl iodide

D. Methyl iodide

Answer: C

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21. Chlorobenzene can be prepared by reacting aniline with

A. Hydrochloric acid

B. Cuprous chloride

C. Chlorine in presence of anhydrous aluminium chloride

D. Nitrous acid followed by heating with cuprous chloride

Answer: D

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22. Which of the following compound will give a yellow precipitate with iodine and alkali?

A. 2-hydroxy propane

B. Acetophenone

C. methyl acetone

D. Acetamide

Answer: B

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23. Which compound does not from iodofrom with alkali and iodine? .

A. Acetone

B. Ethanol

C. Diethyl ketone

D. isopropyl alcohol

Answer: C

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24. HBr reacts fastest with

A. 2-methyl propan-2-ol

B. Propan-1-ol

C. Propan-2-ol

D. 2-methyl propan-1-ol

Answer: A

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25. The reaction conditions leading to the best yield of C_2H_5Cl are

A. $C_2H_6(\text{excess}) + Cl_2 \xrightarrow{\text{UV light}}$

B. $C_2H_6 + Cl_2(\text{excess}) \xrightarrow[\text{room temp}]{dark}$

C. $C_2H_6 + Cl_2(excess) \xrightarrow{\text{UV light}}$

D. $C_2H_6 + Cl_2 \xrightarrow{\text{UV light}}$

Answer: A

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26. n-propyl bromide on treatment with ethanolic potassium hydroxide produces

A. Propane

B. Propene

C. Propyne

D. Propanol

Answer: B

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27. The number of structural and configurational isomers of a bromo compound, C_5H_9Br, formed by the addition of HBr to 2-pentyne respectively, is:

A. 1 and 2

B. 2 and 4

C. 4 and 2

D. 2 and 1

Answer: B

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28. Chlorination of toluene in the presence of light and heat followed by treatment with aqueous $NaOH$ gives

A. o-resol

B. p-cresol

C. 2,4-dihydroxy toluene

D. Benzoic acid

Answer: D

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29. $1-$ Chlorobutane on reaction with alchloic potash gives:

A. 1-butene

B. 1-butanol

C. 2-butene

D. 2-butanol

Answer: A

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30. Assertion: Aryl halides undergoes nucleophilic substitution with ease Reason The carbon halogen bond in aryl halides has partial double bond character .

A. Both (S) and (E) are true and (E) is the correct explanation of (S)

B. Both (S) and (E) are true, but (E) is not the correct

C. (S) is true but (E) is true

D. (S) is false but (E) is true

Answer: D

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31. Ethyl bromide reacts with silver nitrite to form

A. Nitroethane

B. Nitroethane & ethyl nitrite

C. Ethyl nitrite

D. Ethane

Answer: A

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32. The products of combustion of an aliphatic thiol (RSH) at 298 K are

A. $CO_2(g), H_2O(g)$ and $SO_2(g)$

B. $CO_2(g), H_2O(l)$ and $SO_2(g)$

C. $CO_2l, H_2O(l)$ and $SO_2(g)$

D. $CO_2(g), H_2O(l)$ and $SO_2(l)$

Answer: B

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33. Isobutyl magneisum bromide with dry ether and absolute alcohol gives

A. $CH_3\underset{\underset{CH_3}{|}}{C}HCH_2OH$ and CH_3CH_2MgBr

B. $CH_3\underset{\underset{CH_3}{|}}{C}HCH_2CH_2CH_3$ and $MgOHBr$

C. $CH_3\ \underset{\underset{CH_3}{|}}{C}\ H_2CH_3, CH = CH_2$ and $Mg(OH)Br$

D. $CH_3 - \underset{\underset{CH_3}{|}}{C}\ HCH_3$ and CH_3CH_2OMgBr

Answer: B

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34. During debromination of meso-dibromobutane, the major compound formed is :

A. n-butane

B. 1-butene

C. cis-2-butene

D. trans-2-butene

Answer: D

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35. The number of possibel enantiomeric paira that can be produced during monochlorination of 2-methyl butane is :

A. 2

B. 3

C. 4

D. 1

Answer: D

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36. $(CH_3)_3CMgCl$ on reaction with D_2O produces

A. $(CH_3)_3CD$

B. $(CH_3)_3COD$

C. $(CD)_3CD$

D. $(CD)_3COD$

Answer: A

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37. Statement I Benzonitrile is prepared by the reaction of chlorobenzene with potassium cyanide.

Statement II Cyanide $\left(CN^{-}\right)$ is a strong nucleoohile.

A. Both assertion and reason are correct and reason is the correct explanation of the assertion

B. Both assertion and reason are correct, but reason is not the correct explanation of the assertion

C. Assertion is correct but reason is incorrect

D. Assertion is incorrect but reason is correct

Answer: D

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38. Which of the following reactions gives $H_2C = C = C = CH_2$

A. $CH_2Br - CBr = CH_2 \xrightarrow{Zn\,/\,CH_3OH}$

B. $HC \equiv C - CH_2 - COOH \xrightarrow[40^\circ C]{Aq.K_2CO_3}$

C. $CH_2Br - C \equiv C - CH_2Br \xrightarrow[\text{Heat}]{Zn}$

D. $2CH_2 = CH - CH_2 - I \rightarrow$

Answer: C

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39. An alkyl bromide reacts with Na metal to form $4, 5$-diethyl octane. The bromide is

A. $CH_3(CH_2)_3Br$

B. $CH_3(CH_2)_5Br$

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

D. $CH_3(CH_2)_2CH.Br.CH_2CH_3$

Answer: D

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40. The order of reactivities of the following alkyl halides for a S_{N^2} reaction is :

A. RFgtRClgtRBrgtRI

B. RFgtRBrgtRClgtRI

C. RClgtRBrgtRFgtRI

D. RIgtRBrgtRClgtRF

Answer: D

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41. $H_3C - \underset{\underset{D}{|}}{CH} - \underset{\underset{CH_3}{|}}{C}\ H_3 + Br^{\cdot} \rightarrow 'X' + HBr$:

Identify the structure of the major product 'X':

A. $H_3C - \underset{\underset{D}{|}}{CH} - \underset{\underset{CH_3}{|}}{C}\ H - \dot{C}H_2$

B. $H_3C - \underset{\underset{D}{|}}{CH} - \underset{\underset{CH_3}{|}}{\dot{C}} - CH_3$

C. $H_3C - \underset{\underset{D}{|}}{\dot{C}} - \underset{\underset{CH_3}{|}}{CH} - CH_3$

D. $H_3C - \dot{C}H - \underset{\underset{C}{|}}{CH} - CH_3$

Answer: B

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42. Identify the set of reagents/ reaction condition 'X' and 'Y' in the following set of transformations :

$$CH_3 - CH_2 - CH_2Br \xrightarrow{X} \text{Product} \xrightarrow{Y} CH_3 - \underset{\underset{Br}{|}}{CH} - CH_3$$

A. X=dilute aqueous NaOH, $20^\circ C$, $Y = HBr$ / acetic acid, $20^\circ C$

B. X=concentrated alcoholic

NaOH, $80^\circ C$, $Y = HBr$/acetic acid, $20^\circ C$

C. X=dilute aqueous NaoH, $20^\circ C$, $Y = Br_2 / CHCl_3$, $0^\circ C$

D. X=concentrated alcoholic NaoH, $80^\circ C$

$$Y = Br_2 / CHCl_3, 0^\circ C$$

Answer: B

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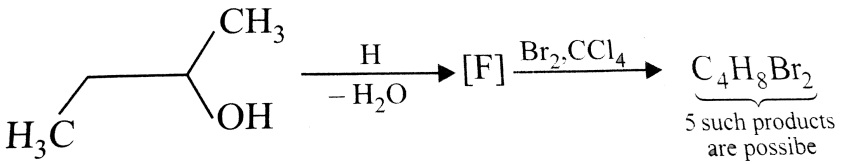
43. How many structures for F are possible



A. 2

B. 5

C. 6

D. 3

Answer: B

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44. Among the following, the molecule with the highest dipole moment is :

A. CH_3Cl

B. CH_2Cl

C. $CHCl_3$

D. CCl_4

Answer: A

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45. When phenyl magnesium bromide reacts with t-butanol, the product would be:

A. Benzene

B. Phenol

C. t-butyl benzene

D. t-butyl phenyl ether

Answer: A

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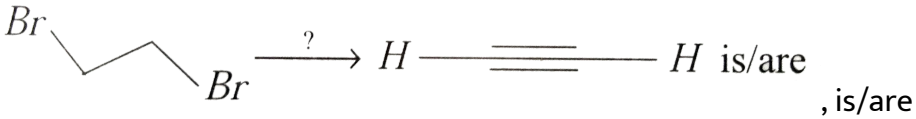
46. The reagent(s) for the following conversion,



is/are

, is/are

A. Alcholic KOH

B. Alcoholic KOH followed by $NaNH_2$

C. Aqueous KOH followed by $NaNH_2$

D. Zn/CH_3OH

Answer: B

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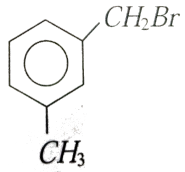
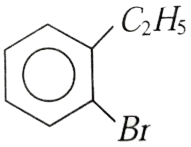
47. Compound (A) ,C_8H_9Br gives a white precipitate when warmed with alcoholic $AgNO_3$ Oxidation of (A) gives an acid (B) $C_8H_6O_4$ (B) easily forms anhydride on heating Identify the compound (A)

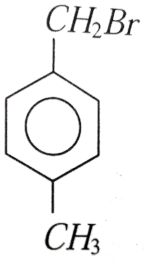
A. (a)



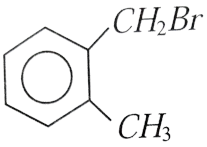
B. (b)



C. (c)



D. (d)



Answer: D

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48. The synthesis of alkyl fluoride is best accomplished by:

A. Free radial fluorination

B. Sandmeyer's reaction

C. Finkelstein reaction

D. Swarts reaction

Answer: D

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49. 2-chloro-2-methylpentane on reaction with sodium methoxide in methanol yields:

(a) $C_2H_5CH_2\overset{CH_3}{\underset{CH_3}{\overset{|}{\underset{|}{C}}}} - OCH_3$ (b) $C_2H_5CH_2\overset{}{\underset{CH_3}{\overset{}{\underset{|}{C}}}} = CH_2$ (c) $C_2H_5CH_2 = \overset{}{\underset{CH_3}{\overset{}{\underset{|}{C}}}} - CH_3$

A. (A) and (C)

B. (C) only

C. (A) and (B)

D. All of these

Answer: D

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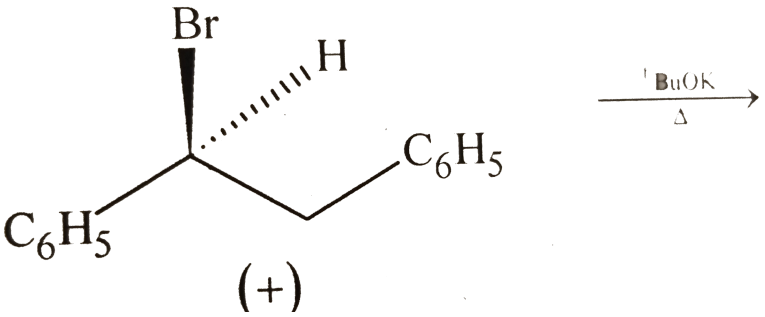
50. The major product obtained in the following reaction is:



A. $C_6H_5CH = CHC_6H_5$

B. $(+)C_6H_5CH(O^tBu)CH_2C_6H_5$

C. $(-)C_6H_5CH(O^tBu)CH_2C_6H_5$

D. $(\pm)C_6H_5CH\left(O^tBu\right)CH_2C_6H_5$

Answer: A

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51. The increasing order of the reactivity of the following halides for the S_N1 reaction is

$$\underset{(I)}{\overset{\overset{Cl}{|}}{CH_3CHCH_2CH_3}} \qquad \underset{(II)}{CH_3CH_2CH_2Cl} \qquad \underset{(III)}{p-H_3CO-C_6H_4-CH_2Cl}$$

A. $(II) < (I) < (III)$

B. $(I) < (III) < (II)$

C. $(II) < (III) < (I)$

D. $(III) < (II) < (I)$

Answer: A

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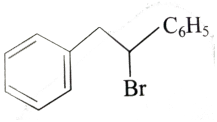
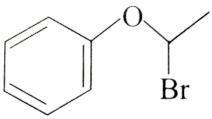
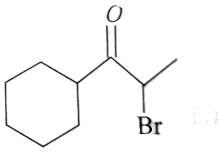
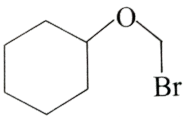
52. Which of the following , upon treatment with tert-BuONa followed by addition of bromine water , fails to decolourise the colour of bromine ?

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: D

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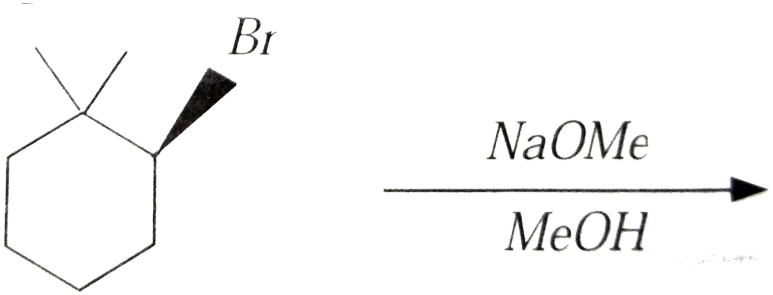
53. The major product of the following reaction is



A. 

B. 

C. 

D. 

Answer: A

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54. Aryl halides are less reactive towards nucleophilic substitution reaction as compared to alkyl halides due to

A. The formation of less stable carbonium ion

B. Resonance stabilization

C. Longer carbon halogen bond

D. sp^2-hybridized carbon attached to the halogen

Answer: B::D

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55. The compounds used as refrigent are

A. NH_3

B. CCl_4 is non-inflammable

C. CF_4

D. CF_2Cl_2

Answer: A::D

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56. The products of reaction of alcoholic silver nitrite with enthyl bromide are

A. Ethane

B. Etheene

C. Nitroethane

D. Ethyl nitrite

Answer: C

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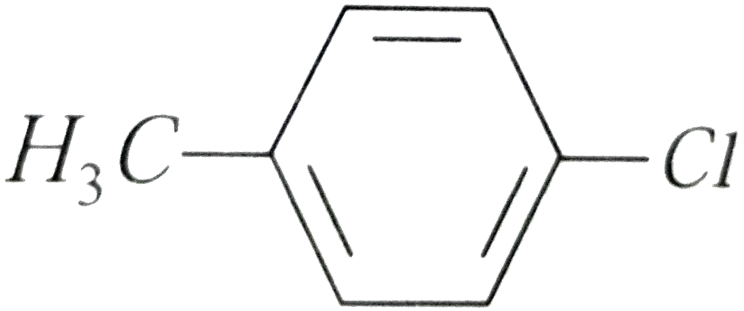
57. The IUPAC name(s) of the following compound is (are)



A. 4-methylchlorobenzne

B. 4-chlorotoluene

C. 1-chloro-4-methylbenzene

D. 1-methyl-4-chlorobenzene

Answer: B::C

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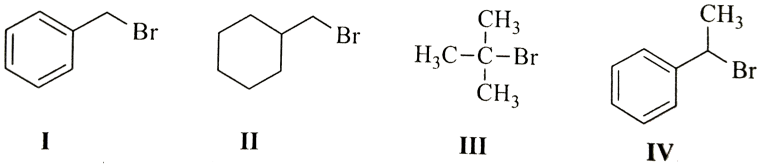
58. For the following compounds, the correct statement(s) with respect to nucleophilic substitution reactions is(are)



I II III IV

A. Compound IV undergoes inversion of configuration

B. The order of reactivity of I,III and IV is $IV > I > III$

C. I and III follow S_N1 mechanism

D. I and II follow S_N2 mechanism

Answer: A::C::D

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59. Which of the following easily undergo nucleophilic substutition by S_{N^1} mechanism in butanol

A. $C_6H_5CH_2Br$

B. $BrCH_2CH = CH_2$

C. $(CH_3)_3CBr$

D. $(CH_3)_3CCH_2Br$

Answer: A::B::C::D

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Critical Thinking Reasoning Type Questions

1. A) Addition of bromine to trans-but-2-ene yields meso-2,3-dibromo butane.

R) Bromine addition to an alkene is an electrophilic addition.

A. Statement 1 is true, statement 2 is true, statement 2 is a correct explanation for statement 1

B. Statement 1 is true, statement 2 is true, statement 2 is not a correct explanation for statement

C. Statement 1 is true, statement 2 is false

D. Statement 1 is false, statement 2 is true

Answer: D

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2. Statement 1: NBS is a specific reagent for allylic bromination.

Statement 2: Allylic bromination occurs through free radial intermediates.

A. Statement 1 is true, statement 2 is true, statement 2 is a correct explanation for statement 1

B. Statement 1 is true, statement 2 is true, statement 2 is not a correct explanation for statement

C. Statement 1 is true, statement 2 is false

D. Statement 1 is false, statement 2 is true

Answer: B

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Critical Thinking Comprehension Type Questions

1. The reactions of CI_2 gas with cold-dilute and hot-concentrated NaOH in water give sodium salts of two different oxioacids of chlorine, P and Q, respectively. The CI_2 gas reacts with SO_2 gas, in presence of charocal, to give a product R reacts with white phosphorus to give a compound S. On hydrolysis, S gives an oxoacid of phosphorus.

P and Q, respectively, are the sodium salts of

A. Hypochlorous & chloric acids

B. Hypochlorous & chlorous acids

C. Chloric & perchloric acids

D. Chloric & hypochlorous acids

Answer: A

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2. The reactions of CI_2 gas with cold-dilute and hot-concentrated NaOH in water give sodium salts of two different oxioacids of chlorine, P and Q, respectively. The CI_2 gas reacts with SO_2 gas, in presence of charocal, to give a product R reacts with white phosphorus to give a compound S. On hydrolysis, S gives an oxoacid of phosphorus.

R, S and T, respectively, are

A. $SO_2Cl_2, PCl_5 \& H_3PO_4$

B. $SO_2Cl_2, PCl_3 \& H_3PO_3$

C. $SOCl_2, PCl_3 \& H_3PO_2$

D. $SOCl_2, PCl_5 \& H_3PO_4$

Answer: A

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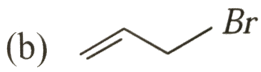
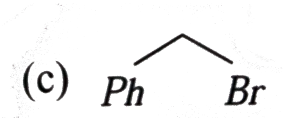
3. Velocity of the S_{N^2} reaction depends on the concentration of the substrate as well as te nucleophile.

The reaction is favoured by strong $Nu^{\ominus}$, and in the presence of polar aprotic solvent, optically active halides give walden inversion by S_{N^2} mechanism. the presence of hetro group (atom as $\beta - C$ atom, unsaturation at $\beta - C$, and $\left(-\overset{O}{\overset{||}{C}} - \right)$ Allyl halides also give S_{N^2} mechanism. EDG at ortho-and para-positions in benzyl halides favours S_{N^1} mechanism, whereas EWG favours S_{N^2} mechanism.

Q. Which of the following will give S_{N^2} mechanism

A. MeBr

B. 

C. 

D. All of these

Answer: D

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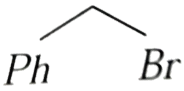
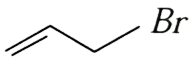
4. Velocity of the S_{N^2} reaction depends on the concentration of the substrate as well as te nucleophile.

The reaction is favoured by strong $Nu^{\ddot{\ominus}}$, and in the presence of polar aprotic solvent, optically active halides give walden inversion by S_{N^2} mechanism. the presence of hetro group (atom as $\beta - C$ atom, unsaturation at $\beta - C$, and $\left(-\overset{O}{\overset{||}{C}} - \right)$ Allyl halides also give S_{N^2} mechanism. EDG at ortho-and para-positions in benzyl halides favours S_{N^1} mechanism, whereas EWG favours S_{N^2} mechanism.

Q. Which of the following will give Walden inversion

A. $C_4H_9 - CHD - Br$

B. (b) 

C. (c) 

D. All of these

Answer: A

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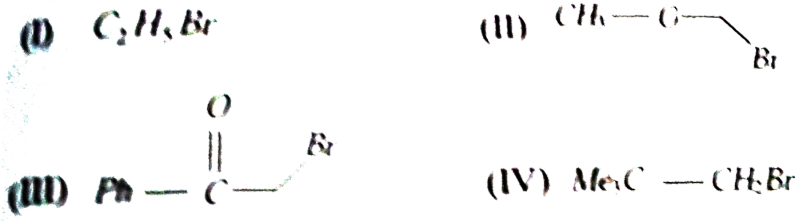
5. Velocity of the S_{N^2} reaction depends on the concentration of the substrate as well as te nucleophile.

The reaction is favoured by strong $Nu^{\ddot{\ominus}}$, and in the presence of polar aprotic solvent, optically active halides give walden inversion by S_{N^2} mechanism. the presence of hetro group (atom as $\beta - C$ atom, unsaturation at $\beta - C$, and $\left(-\overset{\overset{O}{\|}}{C}- \right)$ Allyl halides also give S_{N^2} mechanism. EDG at ortho-and para-positions in benzyl halides favours S_{N^1} mechanism, whereas EWG favours S_{N^2} mechanism.

Q. Which of the following will give S_{N^2} reaction



Select the correct answer

A. (I) and (II)

B. (I) and (III)

C. (I),(II), and (III)

D. All

Answer: C

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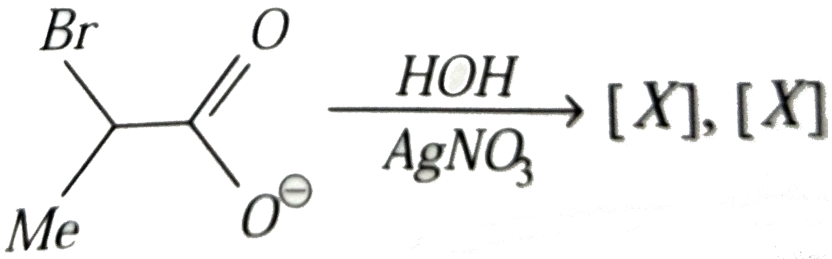
6. Velocity of the S_{N^2} reaction depends on the concentration of the substrate as well as te nucleophile.

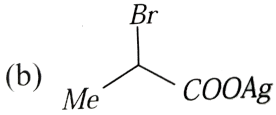
The reaction is favoured by strong $Nu^{\ddot{\ominus}}$, and in the presence of polar aprotic solvent, optically active halides give walden inversion by S_{N^2} mechanism. the presence of hetro group (atom as $\beta - C$ atom, unsaturation at $\beta - C$, and $\left(-\overset{O}{\overset{||}{C}}- \right)$ Allyl halides also give S_{N^2} mechanism. EDG at ortho-and para-positions in benzyl halides favours S_{N^1} mechanism, whereas EWG favours S_{N^2} mechanism.

Q. In the reeaction

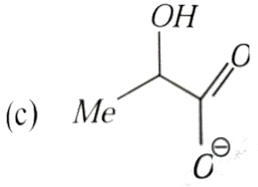


, [X] is

A. C_2H_5Br



B.



C.

D. $CH_2 = CH_2$

Answer: C

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Critical Thinking Integer Type Question

1. How many monochloro derivatives are possible when 3-methylheptane is subjected to free radical chlorination ?

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2. How many chiral stereoisomers can be drawn for 2 - bromo - 3 - chlorobutane ?

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3. Chlorine is passed through boiling toluene, how many chloro derivatives would you get

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4. How many of the following alkenes on addition of HBr would give the sae product in the presence or absence of peroxide propene, 1-butene, 2-

butene, 2-methylpropene, 3-methyl-1-butene, 2,3-dimethyl-1-butene, 2-pentene, 1-pentene, 4-methyl-2-pentene

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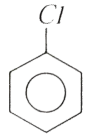
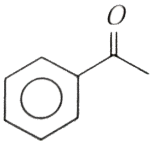
Critical Thinking Matrix Match Type Question

1. Match the reaction listed in Column I with their characteristics listed in Column II.

Column I Reaction		Column II Characteristics	
(A)	$CHCl_3 + HNO_3 \longrightarrow$ An insecticide and tear gas	(p)	Gammaxene
(B)	Benzene $+ Cl_2 \xrightarrow{h\nu}$ Product	(q)	Borodinene-Hunsdiecker reaction
(C)	 $+$ Chloral $\xrightarrow[H_2SO_4]{Conc.}$ Product	(r)	Chloropicrin
(D)	Silver acetate $\xrightarrow[CCl_4]{Br_2} CH_3Br$	(s)	Compounds containing oxygen
(E)	 $\xrightarrow[h\nu]{Cl_2}$ $PhCOCH_2Cl$ Phenacyl chloride	(t)	Dichlorodiphenyl trichloroethane
		(u)	Used as a lachrymator (weeping gas) Used to disperse the mob by police

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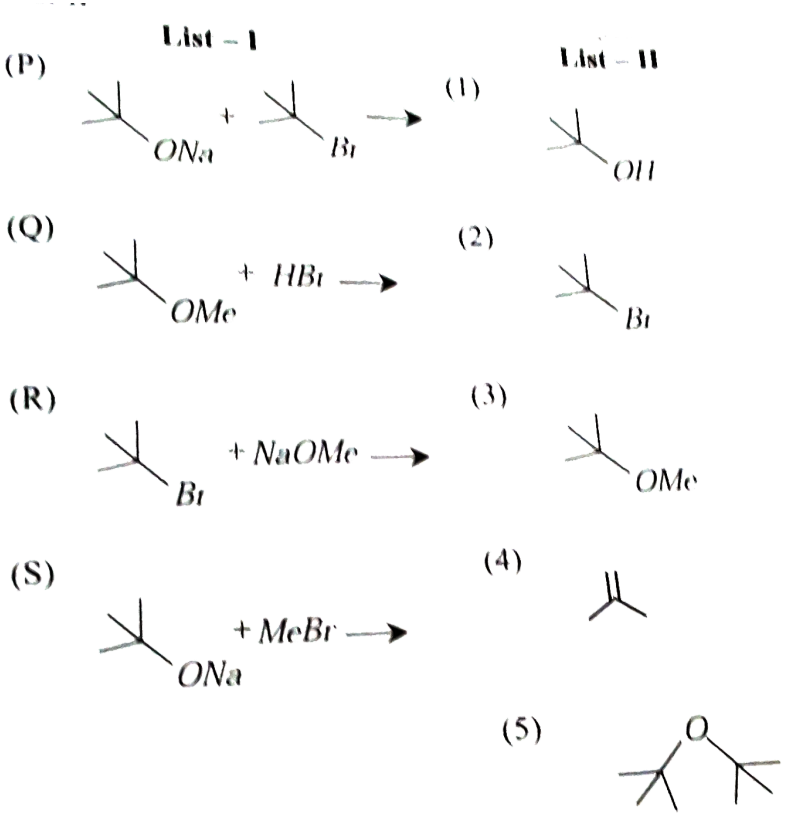
Critical Thinking Jee Advanced 2018

1. List -I contains reaction and List-II contains major products. Match each reaction in List-I with one or more product in List-II



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