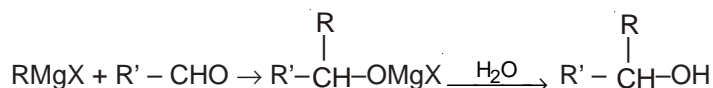


Solved Example

Ex.1 For the preparation of 2-propanol, methyl magnesium chloride will react with the following reagent

- [1] Oxirane [2] Ethanal [3] Methanal [4] Propanal

Sol. [2] Alkyl magnesium halides on reacting with aldehydes other than formaldehyde give secondary alcohol.



Methyl magnesium chloride will react with CH_3CHO (Ethanal)

Ex.2 In Zerewittnoff's method Grignard's reagent reacts with the following

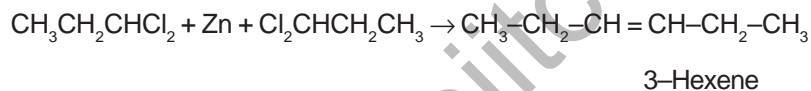
- [1] A primary amine [2] a primary alcohol
[3] Acetylene [4] All of above

Sol. [4] In Zerewitinoff method, Grignard's reagent reacts with the compounds containing active H-atom because it is a method to estimate active H-atom in compounds.

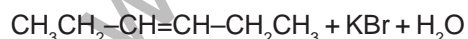
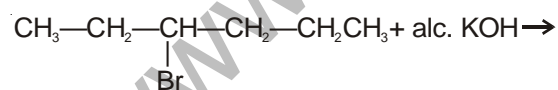
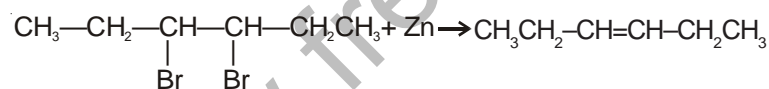
Ex.3 The compound formed by reaction of 1,1-dichloropropane with Zn can also be prepared by the following reaction

- [1] 3,4-Dibromohexane with zinc [2] 3-Bromohexane with alcoholic KOH
[3] both of the above [4] None of above

Sol. [3] 1,1-Dichloro propane on reacting with Zn gives 3-hexene



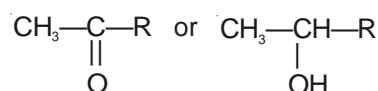
Choice [1] and [2] also give 3-hexene



Ex.4 Which of the following compounds gives iodoform with $\text{I}_2 + \text{NaOH}$

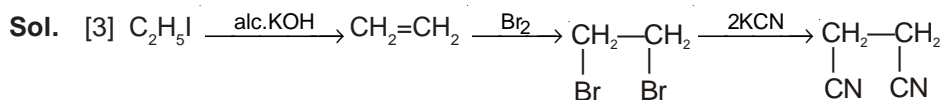
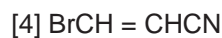
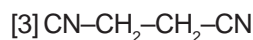
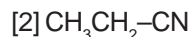
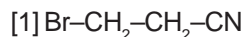
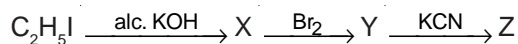
- [1] $\text{CH}_3\text{CH}_2\text{OH}$ [2] $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$ [3] CH_3OH [4] CH_3COOH

Sol. [1] The compounds having following types of structure

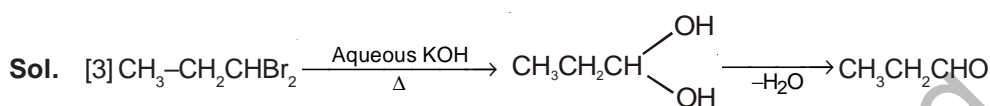
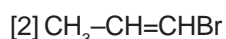
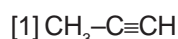


(R=H or alkyl) give iodoform with $\text{I}_2 + \text{NaOH}$

Ex.5 Identify Z in the following reaction sequence



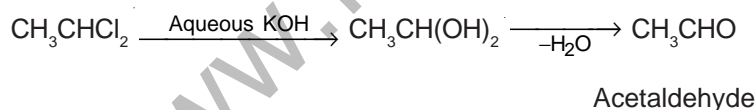
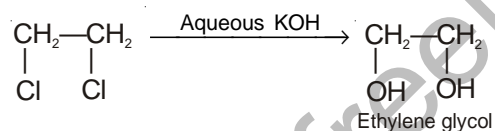
Ex.6 The following compound is obtained when $\text{CH}_3\text{CH}_2\text{CHBr}_2$ is boiled with aqueous caustic potash -



Ex.7 Which of the following properties is not common for ethylene chloride and ethylidene chloride



Sol. [4] Both react with aqueous Caustic potash and give different products

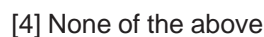
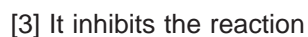


Ex.8 A primary amine is formed when Grignard reagent reacts with the following compound.



Sol. [3] $\text{RMgCl} + \text{ClNH}_2 \rightarrow \text{RNH}_2 + \text{MgCl}_2$

Ex.9 In the preparation of Grignard reagent iodine crystal is used as



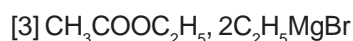
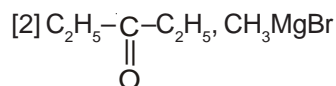
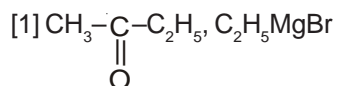
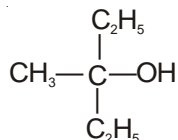
Sol. [1] Iodine crystal catalyses the reaction

Q.10 With which of the following functional group Grignard reagent gives substitution reaction

- [1] $>C=O$ [2] $-CHO$ [3] $-C\equiv CH$ [4] $>C=S$

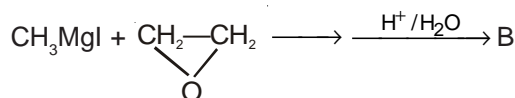
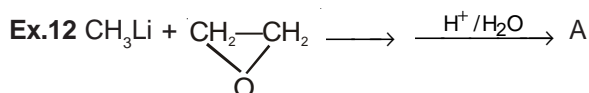
Sol. [3] $-C\equiv CH + RMgX \rightarrow RH + -C\equiv CMgX$

Q.11 Which of the following pair will be ideal in the formation of



[4] All the above

Sol. [4] All the pairs given in [1], [2] and [3] are suitable for the synthesis of tertiary alcohol.



The false statement about the product A and B is

- [1] Both are primary alcohols
 [2] Both do not turn blue litmus to red
 [3] The isomer of A and B is symmetrical ether
 [4] Both have the same boiling points

Sol. [3] A and B are nothing but n-propyl alcohol. Its isomer is an unsymmetrical ether $[CH_3OCH_2CH_3]$

Exercise # 1

- Q.1** Which of the following is a colourless gas :
- [1] Freons [2] Chloroform [3] Iodoform [4] Ethanol
- Q.2** Two monochloro derivatives are possible for which of the following :
- [1] Ethane [2] n-Butane [3] Isopentane [4] Benzene
- Q.3** The following compound is formed by the reaction of chloroform with Conc. HNO_3 :
- [1] CHCl_2NO_2 [2] CCl_3NO_2 [3] $\text{CHCl}_2\text{HNO}_3$ [4] None of these
- Q.4** Which of the following is a freon ?
- [1] CCl_4 [2] CCl_2F_2 [3] CF_4 [4] CF_2Br_2
- Q.5** The sample of chloroform used as anaesthetic is tested by :
- [1] Fehling solution [2] Ammoniacal Cu_2Cl_2
[3] AgNO_3 solution [4] Boiling with KOH and then adding AgNO_3 solution
- Q.6** Phosgene is :
- [1] PH_3 [2] POCl_3 [3] CS_2 [4] COCl_2
- Q.7** Grignard reagent is prepared by the following reaction :
- [1] Magnesium and alkane [2] Magnesium and aromatic hydrocarbon
[3] Magnesium and alkyl halide [4] Zinc and alkyl halide
- Q.8** The compound used as fire extinguisher is :
- [1] Ammonia [2] Chloroform [3] Carbon disulphide [4] Carbon tetrachloride
- Q.9** In the reaction $\text{C}_2\text{H}_5\text{OH} + \text{HX} \xrightarrow{\text{ZnX}_2} \text{C}_2\text{H}_5\text{X}$, the order of the reactivity of HX is :
- [1] $\text{HBr} > \text{HI} > \text{HCl}$ [2] $\text{HI} > \text{HCl} > \text{HBr}$ [3] $\text{HI} > \text{HBr} > \text{HCl}$ [4] $\text{HCl} > \text{HBr} > \text{HI}$
- Q.10** What is the correct order of reactivity of the following alkyl halides if the halogen atom is same ?
- [1] $(1^\circ) > (2^\circ) > (3^\circ)$ [2] $(3^\circ) > (1^\circ) > (2^\circ)$ [3] $(3^\circ) > (2^\circ) > (1^\circ)$ [4] $(1^\circ) > (3^\circ) > (2^\circ)$
- Q.11** The main product of the reaction of propane with chlorine at 25°C in the presence of sunlight is :
- [1] 1-Chloropropane [2] 2-Chloropropane [3] Chloroethane [4] Chloromethane
- Q.12** Which of the following compounds is used as refrigerant ?
- [1] Acetone [2] CCl_4 [3] CF_4 [4] CCl_2F_2
- Q.13** Which of the following will give iodoform test ?
- [1] 3-Pentanone [2] Formaldehyde [3] Butanone [4] Benzyl alcohol
- Q.14** Carbon tetrachloride is used as fire extinguisher under the name :
- [1] Pyrene [2] Phosgene [3] Phosphine [4] None of these
- Q.15** Compounds A, B and C in the following reaction sequence are :
- $$\text{C}_2\text{H}_5\text{Br} \xrightarrow{\text{AgCN}} \text{A} \xrightarrow{\text{H}_3\text{O}^+} \text{B} + \text{C}$$
- [1] $\text{C}_2\text{H}_5\text{CN}$, $\text{C}_2\text{H}_5\text{COOH}$, NH_3 [2] $\text{C}_2\text{H}_5\text{NC}$, $\text{C}_2\text{H}_5\text{NH}_2$, HCOOH
[3] $\text{C}_2\text{H}_5\text{NC}$, $\text{C}_2\text{H}_5\text{NHCH}_3$, HCOOH [4] None of these
- Q.16** Which of the following is a solid at room temperature :
- [1] Methyl chloride [2] Chloroform [3] Iodoform [4] Bromoform

- Q.17** Which of the following samples of chloroform will give white precipitate with silver nitrate ?
[1] Pure chloroform [2] Chloroform exposed to air
[3] Both of the above [4] None of the above
- Q.18** Which of the following is boiled with ethyl chloride for the preparation of ethyl alcohol ?
[1] Alcoholic KOH [2] Aqueous KOH [3] H_2O [4] H_2O_2
- Q.19** The product of the reaction of ethyl bromide with silver nitrite is :
[1] Nitroethane [2] Nitroethane and ethyl nitrite
[3] Ethyl nitrite [4] Ethane
- Q.20** The compound X in the reaction $X + Zn \rightarrow 3\text{-Hexene}$, is :
[1] 3, 4-Dichlorohexane [2] 1, 1-Dichloropropane [3] Both of the above [4] None of the above
- Q.21** The following is obtained by heating iodoform with Ag powder :
[1] Acetylene [2] Ethylene [3] Methane [4] Ethane
- Q.22** The most inert compound is
[1] Iodoform [2] Dichloromethane [3] Dichlorodifluoro [4] Chloroform
- Q.23** The following is not obtained by the hydrolysis of a gem dihalide ?
[1] A 1, 2-Diol [2] An aldehyde [3] A ketone [4] None of these
- Q.24** 1% pure alcohol is added to the chloroform used in hospitals because :
[1] It stops the oxidation of chloroform
[2] The poisonous gas phosgene is not formed
[3] Phosgene is formed but ethyl alcohol converts it into diethyl carbonate
[4] It is helpful in producing unconsciousness
- Q.25** What is false for alkyl halides ?
[1] These are completely soluble in water [2] These give nucleophilic substitution reactions
[3] These are insoluble in water [4] These are soluble in organic solvents
- Q.26** The reactivity of alkyl halides depends upon :
[1] the nature of halogen atom [2] the nature of alkyl group
[3] both of the above [4] None of these
- Q.27** Hunsdicker reaction is an example of :
[1] Decarboxylation [2] Debromination
[3] Decarboxylation and bromination [4] Bromination
- Q.28** C_4H_9Br can represent :
[1] A 3° bromoalkane [2] A 2° bromoalkane [3] A 1° bromoalkane [4] All of the above
- Q.29** The reason to keep chloroform in the dark brown coloured bottle is :
[1] To stop its oxidation [2] To stop its decomposition
[3] To stop the formation of carbon tetrachloride from it [4] To stop its hydrolysis
- Q.30** Which of the following metals is used in Wurtz synthesis :
[1] Ba [2] Al [3] Na [4] Fe
- Q.31** CCl_4 does not give a precipitate with $AgNO_3$. Its reason is :
[1] The formation of a complex [2] The evolution of Cl_2 gas
[3] Chloride ion is not formed [4] $AgNO_3$ does not give Ag ions

- Q.32** In carbylamine test, alcoholic KOH is heated with :
- [1] Chloroform and silver powder [2] Trihalomethane and a primary amine
 [3] Alkyl halide and a primary amine [4] Alkyl cyanide and a primary amine
- Q.33** At room temperature, iodoform is :
- [1] A colourless liquid [2] A violet coloured gas [3] A yellow solid [4] A grey liquid
- Q.34** In the Darzen's process for the preparation of alkyl chlorides, alcohol react with :
- [1] Thionyl chloride in pyridine [2] Sulphuryl chloride in pyridine
 [3] HCl + anhy. $ZnCl_2$ [4] None of the above
- Q.35** The final product (Y) of the following reaction is :
- $$C_2H_4 \xrightarrow{Br_2} X \xrightarrow{Pd/H_2} Y$$
- [1] CH_3CH_2Br [2] CH_3-CH_3 [3] C_2H_2 [4] $C_2H_4Br_2$
- Q.36** The reaction of bleaching powder with ethanol is :
- [1] Hydrolysis [2] Oxidation [3] Halogenation [4] All of the above
- Q.37** $A \xrightarrow{OBr^-} CHBr_3$
 The compound is :
- [1] Isopropyl alcohol [2] Isobutyl alcohol [3] Neopentyl alcohol [4] n-Butanol
- Q.38** The following reagent is required for the conversion of a primary amine into a primary alkyl halide :
- [1] $SOCl_2$ /Pyridine [2] Luca's reagent [3] Tilden's reagent [4] PCl_5
- Q.39** The product of the reaction of ethyne with hydrochloric acid can also be prepared by the following reaction
- [1] Ethanal with PCl_5 [2] Ethene with Cl_2 [3] Ethyl chloride with Cl_2 [4] None of these
- Q.40** Strecker's reaction is :
- [1] $ROH + SOCl_2 \rightarrow$ [2] $2RBr + 2Zn \rightarrow$ [3] $RCI + Na_2SO_3 \rightarrow$ [4] $ROH + PCl_5 \rightarrow$
- Q.41** Which will react with aqueous KOH with difficulty ?
- [1] Allyl chloride [2] Vinyl chloride [3] Chlorobenzene [4] [2] and [3] Both
- Q.42** Which of the following compounds is used as methylating agent ?
- [1] C_2H_5Cl [2] C_2H_5Br [3] C_2H_5I [4] CH_3I
- Q.43** The following reagent is used in the preparation of an unsaturated compound from chloroform :
- [1] $Zn + H_2O$ [2] $Fe + H_2O$ [3] Zn [4] Ag powder
- Q.44** The halogen derivative used as an antiseptic is :
- [1] $CHCl_3$ [2] $CHBr_3$ [3] CCl_4 [4] CHI_3
- Q.45** Which of the following reagents is used to step up the C-chain in alkyl halides :
- [1] HCN [2] KCN [3] NH_4CN [4] AgCN
- Q.46** The following group is replaced by a halogen atom :
- [1] Hydroxyl group ($-OH$) [2] Aldehyde ($-CHO$) [3] Nitro (NO_2) [4] Ketone ($>C=O$)
- Q.47** CCl_4 is insoluble in water because :
- [1] Water is polar [2] CCl_4 is nonpolar [3] Water and CCl_4 are polar [4] None of the above
- Q.48** The compound formed by the reaction of ethyl chloride with sodium-lead alloy is :
- [1] Tetraethyl lead [2] Sodium ethoxide [3] Ethyl sodium [4] No reaction

- Q.49** Which of the following reagents reduces alkyl halide by hydride ion ?
 [1] Na/C₂H₅OH [2] NaBH₄ [3] Pd/H₂ [4] Zn–Cu/C₂H₅OH
- Q.50** The compound with highest boiling point is :
 [1] C₂H₅I [2] C₂H₅Br [3] C₂H₅Cl [4] C₃H₇Cl
- Q.51** The following alkane is not obtained by the reaction of ethyl iodide with propyl iodide and sodium metal in the presence of dry ether
 [1] Propane [2] Butane [3] Pentane [4] Hexane
- Q.52** The reaction of methane with iodine is carried out in the presence of HIO₃ because HIO₃
 [1] Gives iodine in the iodination of methane [2] Oxidises HI formed in the reaction
 [3] Reduces HI formed in the reaction [4] Changes the I₂ molecule into I atoms.
- Q.53** The following compound is obtained when a mixture of carbon tetra chloride vapours and water vapours is heated at 500°C
 [1] Carbon dioxide [2] Phosgene gas [3] Phosphine gas [4] Phosphoryl chloride
- Q.54** The following compound is formed when the product of the reaction of chloroform with 1-butene is heated with aqueous caustic soda
 [1] Butanoic acid [2] 2-Methyl butanoic acid
 [3] 1,1,1–Trichloro-2-methyl butane [4] Reaction does not take place
- Q.55** The product of the reaction of ethyl iodide with Zn-Cu couple/alcohol can also be prepared by the following reaction
 [1] By the hydrolysis of the product obtained from the reaction of ethyl iodide with Mg in dry ether.
 [2] Reaction of iodomethane with Na in dry ether
 [3] By the reduction of ethyl alcohol with red P + HI
 [4] All of the above
- Q.56** The following compound is obtained on heating 2,2–dichloropropane with aqueous KOH
 [1] 2,2–Propandiol [2] 1,2–Propandiol [3] Propanone [4] Propanal
- Q.57** The product of which of the following reactions is not a vicinal dihalide
 [1] Reaction of ethylene glycol with P + Br₂
 [2] Reaction of HCl with ethyne
 [3] Reaction of HBr with ethyne in the presence of peroxide
 [4] Reaction of Cl₂ with propene
- Q.58** Ethylene chloride and ethylidene chloride are positional isomers. Which of the following statement is not applicable on both
 [1] both are dihalogen derivatives
 [2] Both form the same product with aqueous potash
 [3] Both form the same product with alcoholic potash
 [4] Both give Beilstein test
- Q.59** Which of the following chlorides hydrolyses most easily
 [1] CH₃CH₂CH₂Cl [2] CH₂=CH–Cl [3] CH₂=CH–CH₂Cl [4] (CH₃)₂CHCH₂Cl
- Q.60** A dihalogen derivative (A) with three C-atoms gives a hydrocarbon (B) on reacting with alcoh. KOH. (B) gives a white precipitate with Tollen's reagent. (A) on heating with aqueous KOH gives a ketone. Compound (A) is
 [1] 1,1–Dihalo propane [2] 1,2–Dihalo propane [3] 2,2–Dihalo propane [4] 1,3–Dihalo propane

- Q.61** A five C-atom hydrocarbon is formed by the reduction of a chloroderivative (A) of an alkane with Zn-Cu couple. (A) is dissolved in dry ether and then treated with metallic sodium to give 2,2,5, 5-tetramethyl hexane. The IUPAC name of compound (A) is
 [1] Neopentyl chloride [2] 1-chloro-2,2-dimethyl propane
 [3] 1-chloro-3-methyl butane [4] 2-chloro-3-methylbutane
- Q.62** The unsaturated hydrocarbon obtained by the reaction of a dihalogen derivative with alcoholic potash gives a red precipitate with ammonical cuprous chloride. The dihalogen derivative gives propanal on heating with aqueous potash. The dihalogen derivative is -
 [1] 1,1-Dichloropropane [2] 1,2-Dichloropropane [3] 2,2-Dichloropropane [4] 1,4-Dichloropropane
- Q.63** The following reaction is used in the Darzen's process for the preparation of alkyl chloride
 [1] Alcohol with nitrosyl chloride [2] Alcohol with thionyl chloride in the presence of pyridine
 [3] Alcohol with HCl in the presence of anhy. $ZnCl_2$ [4] None of these
- Q.64** 3.94 g of iodoform is heated with Ag powder. What will be the volume of the gas obtained at NTP
 [1] 224 ml. [2] 112 ml [3] 22400 ml. [4] 2240 ml
- Q.65** The following is formed by the reaction of chloroform with 1,2-dichloro ethene
 [1] Chloral [2] D.D.T. [3] Chloretone [4] 1,1,1,2,3-pentachloropropane
- Q.66** The product of the reaction of ethyl bromide with dry silver oxide in ethanol is the functional isomer of
 [1] A primary alcohol [2] A secondary alcohol [3] A tertiary alcohol [4] All of the above
- Q.67** The compound (A) in the following reaction sequence is
 (A) $\xrightarrow{PCl_5}$ (B) $\xrightarrow{\text{Alco. KOH}}$ (C) $\xrightarrow{H_2/Ni}$ Propane
 [1] Chloroethane [2] Ethanol [3] 1,2-Dichloroethane [4] Propan-2-ol
- Q.68** The false statement about the freons is
 [1] these are high boiling point liquids [2] these are non inflammable and flameless liquids
 [3] these are nonpoisonous and inert [4] these are used as refrigerants
- Q.69** Alkyl halides are insoluble in water although they are polar. Its reason is
 [1] They are unable to form hydrogen bonds with water [2] They are able to form hydrogen bonds with water
 [3] Their density is higher than water [4] Their density is less than water
- Q.70** Which of the following is a false statement
 [1] The product of the reaction of ethyl iodide with silver cyanide is ethyl isocyanide
 [2] The formation of ether from the reaction of methyl iodide with dry Ag_2O is called Williamson's synthesis
 [3] The test of chloroform is possible with Hofmann carbylamine reaction
 [4] Iodoform gives violet vapours on heating
- Q.71** Ethylene chloride and ethylidene chloride are
 [1] Functional isomers [2] Chain isomers [3] Metamers [4] Position isomers
- Q.72** An alkyl isocyanide can be prepared by the following reaction
 [1] By heating an amide with P_2O_5
 [2] By heating an alcohol with NH_3 in the presence of anhy. $ZnCl_2$
 [3] By the reaction of an alkyl halide with AgCN
 [4] By the reaction of an alkyl halidewith KCN

- Q.73** In the laboratory, chloroform is prepared by the following method
 [1] By oxidation of alcohol with bleaching powder
 [2] By reduction of carbon tetrachloride with Fe + H₂O
 [3] By oxidation of carbon tetrachloride with bleaching powder
 [4] None of the above
- Q.74** A and B in the following reactions are respectively
 (i) $\text{CHCl}_3 \xrightarrow{\text{Zn}+\text{H}_2\text{O}}$ A (ii) $\text{CHCl}_3 \xrightarrow{\text{Zn}+\text{HCl}}$ B
 [1] CH₂Cl₂ and CH₄ [2] CH₄ and CH₂Cl₂ [3] CCl₃CHO and CH₄ [4] CCl₃CHO and CH₂Cl₂
- Q.75** The product obtained by the reaction of silver propanoate with bromine in carbon tetrachloride solution is
 [1] Bromoethane [2] Silver-3-bromopropanoate
 [3] Ethanoyl bromide [4] None of the above
- Q.76** Which of the following plastics is a last product of the reaction
 $\text{CFCI}_3 \xrightarrow[\text{SbF}_3]{\text{HF}} \text{X} \xrightarrow{800^\circ\text{C}} \text{Y} \xrightarrow{\text{Polymerisation}} \text{Plastic}$
 [1] Backellite [2] Teflon [3] Polyethene [4] None of the above
- Q.77** Benzene can be converted to isopropyl benzene (Cumene) by the following reagent
 [1] CH₃CH₂CH₂Cl + Anhy. AlCl₃ [2] CH₃-CH = CH₂ + Anhy. AlCl₃
 [3] Both of the above [4] None of the above
- Q.78** The adduct of a compound (A) with isopropyl magnesium halide on hydrolysis gives a tertiary alcohol. The compound (A) is
 [1] An ester [2] A secondary alcohol [3] A primary alcohol [4] An aldehyde
- Q.79** 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
 [1] NO₂⁻ ion [2] NO₃⁻ ion [3] Br⁻ ion [4] I⁻ ion
- Q.80** The product obtained by the hydrolysis of the adduct formed by the reaction of ethyl magnesium iodide with methanal can also be prepared by the following reaction
 [1] Reduction of ethanal with Na/C₂H₅OH [2] 1-Bromopropane with aqueous KOH
 [3] Iodoethane with alco. KOH [4] 1-Bromopropane with alco. KOH

Answer Key





Qus.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ans.	1	2	2	2	3	4	3	4	3	3	2	4	3	1	2	3	2	2	1	3
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Ans.	1	3	1	3	1	3	3	4	1	3	3	2	3	1	2	4	1	3	1	3
Qus.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	4	4	4	4	2	1	2	1	2	1	1	2	2	2	4	3	2	2	3	3
Qus.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
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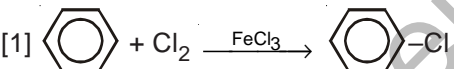
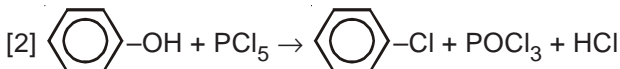
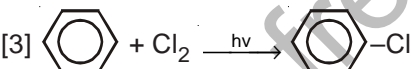
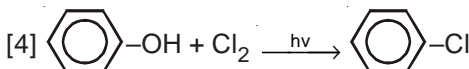
Exercise # 2

- Q.1** An organic compound contains about 7.7% carbon. Its acidic sodium extract gives a white precipitate with AgNO_3 . This precipitate is soluble in the excess of ammonia. The compound is
 [1] CHCl_3 [2] CHBr_3 [3] CHI_3 [4] CCl_4
- Q.2** Match the following and pick up the correct answer
- | | Compound | Use |
|---|--------------------------|------------------------|
| A | CHCl_3 | (i) Refrigerant |
| B | CCl_4 | (ii) Fire extinguisher |
| C | CF_2Cl_2 | (iii) Anaesthetic |
- The correct answer is
 [1] A–(i), B–(ii), C–(iii) [2] A–(iii), B–(ii), C–(i) [3] A–(iii), B–(i), C–(ii) [4] None of the above
- Q.3** Ethylidene bromide can be prepared by the following reaction
 [1] Acetone with PBr_3 [2] Acetone with PBr_5 [3] Ethene with HBr [4] Ethyne with HBr
- Q.4** A compound (A) is formed by the reaction of ethylene with bromine which on reacting with aqueous KOH gives a compound (B). The compound (B) can also be prepared by the reaction of ethylene with the following
 [1] Baeyer's reagent
 [2] Oxygen in the presence of silver catalyst and then acidic hydrolysis
 [3] performic acid and the product undergoes acidic hydrolysis
 [4] All of the above
- Q.5** The product of the reaction of methyl magnesium bromide with methanol can also be prepared by the following reaction
 [1] Reduction of methyl bromide [2] Decarboxylation of sodium ethanoate
 [3] Reduction of methyl alcohol [4] All of the above
- Q.6** The product of the reaction of sodium acetylide with alkyl halide is
 [1] A terminal alkyne [2] A terminal alkene [3] A non terminal alkyne [4] [1] and [3] both
- Q.7** Carbon tetrachloride can be prepared by the following reaction
 [1] CS_2 with Cl_2 in the presence of I_2 [2] CS_2 with S_2Cl_2 in the presence of I_2
 [3] CHCl_3 with Cl_2 in the presence of I_2 [4] All of the above
- Q.8** The adduct of which of the following compounds with Grignard's reagent does not form a primary alcohol on hydrolysis
 [1] O_2 [2] Oxirane [3] Methanal [4] Ethanal
- Q.9** For the preparation of α -butylene from methyl magnesium chloride, it will be reacted with
 [1] Propene [2] Propyl chloride [3] 3-Chloro propene [4] 2-Chloro propene
- Q.10** The vapour density of an organic compound is 23.0. It contains 52.17% C and 13% H. It gives iodoform test. The compound is
 [1] Ethanol [2] dimethyl ether [3] Acetone [4] Methanol
- Q.11** Identify Z in the following reaction
- $$\text{CH}_3\text{CN} \xrightarrow{\text{Na/C}_2\text{H}_5\text{OH}} \text{X} \xrightarrow{\text{HNO}_2} \text{Y} \xrightarrow{\text{KMnO}_4, \text{H}^+} \text{Z}$$
- [1] CH_3CHO [2] CH_3CONH_2 [3] CH_3COOH [4] $\text{CH}_3\text{CH}_2\text{NHOH}$

- Q.12** Which of the following is a correct statement
 [1] C_2H_5Br reacts with alcoholic KOH to give C_2H_5OH
 [2] Reaction of C_2H_5Br with metallic Na gives ethane
 [3] C_2H_5Br reacts with sodium ethoxide to give ether
 [4] C_2H_5Br reacts with AgCN to give ethyl cyanide
- Q.13** The product of the reaction of chloromethane with sodium sulphide is
 [1] Dimethyl sulphide [2] Methan thiol
 [3] Mixture of both the above [4] None of the above
- Q.14** The compound with highest boiling point is -
 [1] Ethylene bromide [2] Ethylene chloride [3] Ethylidene bromide [4] Ethylidene chloride
- Q.15** The main product obtained by the electrolysis of the aqueous ethanolic solution of potassium bromide and sodium carbonate, is
 [1] Ethyl bromide [2] Bromoform [3] Ethylene bromide [4] Ethylidene bromide
- Q.16** Which of the following is Swart's reaction
 [1] $C_2H_5Cl + AgF \xrightarrow{\Delta} C_2H_5F + AgCl$ [2] $2C_2H_5Br + 2Zn \rightarrow (C_2H_5)_2Zn + ZnBr_2$
 [3] $2CHCl_3 + 6Ag \rightarrow CH \equiv CH + 6AgCl$ [4] $C_2H_5Br + NaI \rightarrow C_2H_5I + NaBr$
- Q.17** The chloroform exposed to air and sunlight gives white precipitate with $AgNO_3$ solution because it contains
 [1] Phosgene [2] Hydrogen chloride [3] Chlorine [4] Mixture of all the above
- Q.18** The following type of compounds are obtained by the reaction of a carboxylic acid with lead tetra acetate and lithium chloride in benzene
 [1] Alkyl halides [2] Acid chlorides [3] $CO_2 + H_2O$ [4] None of the above

HALOBENZENE

- Q.19** Which of the following reactions is more suitable than the remaining three for obtaining iodobenzene ?
- [1]  + KI \rightarrow [2]  + HI \rightarrow
- [3]  + HI \rightarrow [4]  + NaI \rightarrow
- Q.20** The reaction of chlorobenzene with which of the following reagents is not an example of electrophilic substitution reaction ?
 [1] $Cl_2 + Fe$ powder [2] Conc. H_2SO_4
 [3] Conc. $HNO_3 +$ Conc. H_2SO_4 [4] $CCl_3CHO +$ Conc. H_2SO_4
- Q.21** At the time of preparation of chlorobenzene from benzene, which of the following can be used as a halogen carrier ?
 [1] A Lewis acid [2] Elements like iron, iodine etc
 [3] A tertiary amine base [4] All of the above
- Q.22** Which of the following can be obtained by Balz-Schiemann reaction ?
 [1] Fluorobenzene [2] Chlorobenzene [3] Bromobenzene [4] Iodobenzene

- Q.23** Which of the following reactions can be used to obtain chlorobenzene from benzenediazonium chloride ?
 [A] Sandmeyer reaction [2] Balz–Schemann reaction
 [C] Rashing process [4] Gattermann reaction
 [1] A and B [2] A, B and C [3] A, C and D [4] C and D
- Q.24** Which of the following catalysts is used in the preparation of chlorobenzene by Gattermann reaction ?
 [1] CuSO_4 [2] CuCl_2 [3] Cu_2Cl_2 [4] Cu
- Q.25** Which of the following catalysts is used in the preparation of chlorobenzene by Sandmeyer's reaction ?
 [1] CuCl_2 [2] Cu_2Cl_2 [3] CuSO_4 [4] Cu
- Q.26** Which of the following compounds is obtained by Borodine–Hunsdiecker reaction of silver benzoate ?
 [1] Fluorobenzene [2] Chlorobenzene [3] Bromobenzene [4] Iodobenzene
- Q.27** Which of the following reagents is used for obtaining chlorobenzene from p–chlorophenol ?
 [1] Zinc dust [2] Soda lime [3] Sodamide [4] Copper powder
- Q.28** All of the following properties are exhibited by chlorobenzene, except :
 [1] Almond-like faint smell [2] Volatility
 [3] Inflammability [4] Nonpoisonous nature
- Q.29** In Dow process, chlorobenzene is reacted with which of the following reagents ?
 [A] $\text{O}_2 + \text{HCl}$ [B] NaOH [C] H_2O [4] Na_2CO_3
 [1] A and C [2] A and D [3] B and C [4] B and D
- Q.30** Condensation of chlorobenzene and chloral hydrate is carried out in the presence of concentrated sulphuric acid for obtaining ?
 [1] D.D.T. [2] Chloropicrin [3] B.H.C [4] Dichlorodiphenylethane
- Q.31** The best method for the preparation of chlorobenzene is :
 [1]  [2] 
 [3]  [4] 
- Q.32** Highest yield of chlorobenzene is obtained in the reaction :
 [1] $\text{C}_6\text{H}_6 \xrightarrow[\text{FeCl}_3]{\text{Cl}_2}$ [2] Phenol $\xrightarrow{\text{PCl}_5}$ [3] $\text{C}_6\text{H}_6 \xrightarrow[\text{h}\nu]{\text{Cl}_2}$ [4] All the above
- Q.33** Chlorobenzene is :
 [1] Nearly as reactive as methyl chloride [2] More reactive than ethyl bromide
 [3] Less reactive than benzyl chloride [4] More reactive than isopropyl chloride

Answer Key




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Qus.	21	22	23	24	25	26	27	28	29	30	31	32	33							
Ans.	4	1	3	4	2	3	1	4	4	1	1	1	3							

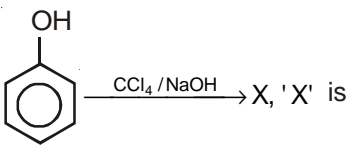
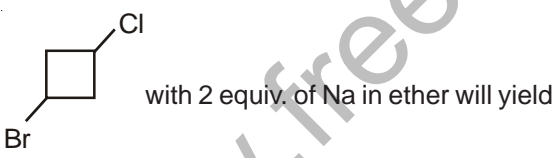
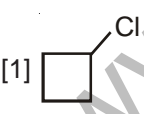
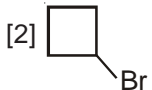


Exercise # 3

- Q.1** In the reaction $C_2H_5MgBr + \begin{matrix} H_2C-CH_2 \\ \diagdown \quad / \\ O \end{matrix} \xrightarrow{H_2O} A$ A is - **[MP PET 1994, CBSE –1998]**
- [1] $C_2H_5CH_2CHO$ [2] $C_2H_5CH_2CH_2OH$ [3] $C_2H_5CH_2OH$ [4] C_2H_5CHO
- Q.2** Which one will give positive iodoform test **[Roorkee- 1995]**
- [1] $CH_3 - CH_2 - OH$ [2] $CH_3 - COO - CH_3$
- [4] $CH_3 - CH_2 - CO - CH_2 - CH_3$ [4] $CH_3 - \underset{\begin{matrix} | \\ CH_3 \end{matrix}}{CH} - CO - CH_2 - CH_3$
- Q.3** War gas is formed from **[BHU- 1995]**
- [1] PH_3 [2] C_2H_2 [3] Zinc phosphate [4] Chloropicrin
- Q.4** $C_2H_5Cl + KCN \longrightarrow X \xrightarrow{\text{Hydrolysis}} Y$, 'X' and 'Y' are **[MP PET- 1995]**
- [1] C_2H_6 and C_2H_5CN [2] C_2H_5CN and C_2H_6
- [3] C_2H_5CN and $C_2H_5CH_2NH_2$ [4] C_2H_5CN and C_2H_5COOH
- Q.5** Iodoform is formed on warming I_2 and NaOH with **[MP PET- 1995]**
- [1] C_2H_5OH [2] CH_3OH [3] $HCOOH$ [4] C_6H_6
- Q.6** Carbon-halogen bond is strongest among the following **[MP PMT- 1995]**
- [1] CH_3Cl [2] CH_3Br [3] CH_3F [4] CH_3I
- Q.7** A compound A has a molecular formula C_2Cl_3OH . It reduces Fehling solution and on oxidation gives a mono-carboxylic acid (B). A is obtained by action of chlorine on ethyl alcohol. A is **[MP PET 1997]**
- [1] Chloral [2] $CHCl_3$ [3] CH_3Cl [4] Chloroacetic acid
- Q.8** For a given alkyl group the densities of the halides follow the order **[MP PMT-1997]**
- [1] $RI < RBr < RCl$ [2] $RI < RCl < RBr$ [3] $RBr < RI < RCl$ [4] $RCl < RBr < RI$
- Q.9** $AgNO_3$ does not give precipitate with chloroform because **[MP PET-1999]**
- [1] $CHCl_3$ is insoluble in water [2] $CHCl_3$ does not ionise in water
- [3] $CHCl_3$ is an organic compound [4] $AgNO_3$ is insoluble in $CHCl_3$
- Q.10** Which of the following alkyl halides is used as a methylating agent **[MP PET- 1999]**
- [1] C_2H_5Cl [2] C_2H_5Br [3] C_2H_5I [4] CH_3I
- Q.11** In which one of the following conversions phosphorus pentachloride is used as a reagent **[EAMCET-1997]**
- [1] $H_2C = CH_2 \rightarrow CH_3CH_2Cl$ [2] $HC \equiv CH \rightarrow CH_2 = CHCl$
- [3] $CH_3CH_2OH \rightarrow CH_3CH_2Cl$ [4] None of these
- Q.12** An organic halide is shaken with aqueous NaOH followed by the addition of dil. HNO_3 and silver nitrate solution gave white ppt. The substance can be **[JIRMER 1997]**
- [1] $C_6H_4(CH_3)Br$ [2] $C_6H_5CH_2Cl$ [3] C_6H_5Cl [4] None of these
- Q.13** In which alkyl halide. SN^2 mechanism is favoured maximum **[RPMT 1997]**
- [1] CH_3Cl [2] CH_3CH_2Cl [3] $(CH_3)_2CHCl$ [4] $(CH_3)_3C-Cl$

- Q.14** Reaction of t-butyl bromide with sodium methoxide produces **[CPMT 1997]**
 [1] Isobutane [2] Isobutylene [3] Sodium t-butoxide [4] t-butyl methyl ether
- Q.15** When alkyl halides are heated with dry Ag_2O , it gives **[CBSE 1998]**
 [1] Ester [2] Ether [3] Ketone [4] AgCl + hydrocarbon
- Q.16** DDT is prepared by reacting chlorobenzene with **[BHU 1998]**
 [1] CCl_4 [2] $\text{CCl}_3 - \text{CHO}$ [3] CHCl_3 [4] Ethane
- Q.17** $\text{C}_3\text{H}_8 + \text{Cl}_2 \xrightarrow{\text{Light}} \text{C}_3\text{H}_7\text{Cl} + \text{HCl}$ is an example of which of the following types of reactions **[CPMT 1999]**
 [1] Substitution [2] Elimination [3] Addition [4] Rearrangement
- Q.18** Compound A reacts with PCl_5 to give B which on treatment with KCN followed by hydrolysis gave propionic acid. What is A and B respectively **[EAMCET 1998]**
 [1] C_3H_8 and $\text{C}_3\text{H}_7\text{Cl}$ [2] C_2H_6 and $\text{C}_2\text{H}_5\text{Cl}$ [3] $\text{C}_2\text{H}_5\text{Cl}$ and $\text{C}_2\text{H}_5\text{Cl}$ [4] $\text{C}_2\text{H}_5\text{OH}$ and $\text{C}_2\text{H}_5\text{Cl}$
- Q.19** Which of the following would be produced when acetylene reacts with HCl **[MH CET 1999]**
 [1] $\text{CH}_3\text{CH}_2\text{Cl}$ [2] CH_3CHCl_2 [3] $\text{CHCl} = \text{CHCl}$ [4] $\text{CH}_2 = \text{CHCl}$
- Q.20** An alkyl bromide (X) reacts with Na to form 4,5-diethyloctane. Compound X is **[Roorkee 1999]**
 [1] $\text{CH}_3(\text{CH}_2)_3\text{Br}$ [2] $\text{CH}_3(\text{CH}_2)_5\text{Br}$ [3] $\text{CH}_3(\text{CH}_2)_3\text{CH}(\text{Br})\text{CH}_3$ [4] $\text{CH}_3(\text{CH}_2)_2\text{CH}(\text{Br})\text{CH}_2\text{CH}_3$
- Q.21** False statement is **[RPET 1999]**
 [1] Chloroform is heavier than water [2] CCl_4 is non-inflammable
 [3] Vinyl chloride is more reactive than allyl chloride [4] Br^- is a weak nucleophile as compared to I^-
- Q.22** Statement "Ozone in atmosphere is decreased by chloro-fluoro-carbon ($\text{Cl}_2\text{F}_2\text{C}$)" **[RPET 1999]**
 [1] Is true [2] Is false
 [3] Only in presence of CO_2 [4] Only in absence of CO_2
- Q.23** Number of π -bonds present in B.H.C. (Benzene hexachloride) are **[RPMT 1999]**
 [1] 6 [2] Zero [3] 3 [4] 12
- Q.24** Which of the following are correct statements about $\text{C}_2\text{H}_5\text{Br}$ **[Roorkee 1999]**
 [1] It reacts with metallic Na to give ethane
 [2] It gives nitroethane on heating with aqueous ethanolic solution of AgNO_2
 [3] It gives $\text{C}_2\text{H}_5\text{OH}$ on boiling with alcoholic potash
 [4] None of these
- Q.25** The use of the product obtained as a result of reaction between acetone and chloroform is **[RPMT 1999]**
 [1] Hypnotic [2] antiseptic [3] Germicidal [4] Anaesthetic
- Q.26** Chloroform with zinc dust in water gives **[UPSEAT 2000]**
 [1] CH_4 [2] Chloropicrin [3] CCl_4 [4] CH_2Cl_2
- Q.27** When ethyl iodide is heated with silver nitrate, the product obtained is **[CPMT 2000]**
 [1] $\text{C}_2\text{H}_5\text{Ag}$ [2] $\text{Ag}-\text{O}-\text{NO}_2$ [3] $\text{C}_2\text{H}_5\text{O}-\text{NO}_2$ [4] $\text{C}_2\text{H}_5\text{I}-\text{NO}_2$
- Q.28** Gem-dibromide is **[RPMT 2000]**
 [1] $\text{CH}_3\text{CH}(\text{Br})\text{OH}(\text{Br})\text{CH}_3$ [2] $\text{CH}_3\text{CBr}_2\text{CH}_3$ [3] $\text{CH}_2(\text{Br})\text{CH}_2\text{CH}_2(\text{Br})$ [4] $\text{CH}_2\text{BrCH}_2\text{Br}$
- Q.29** The correct order of C-X bond polarity is **[RPMT 2000]**
 [1] $\text{CH}_3\text{Br} > \text{CH}_3\text{Cl} > \text{CH}_3\text{I}$ [2] $\text{CH}_3\text{I} > \text{CH}_3\text{Br} > \text{CH}_3\text{Cl}$
 [3] $\text{CH}_3\text{Cl} > \text{CH}_3\text{Br} > \text{CH}_3\text{I}$ [4] $\text{CH}_3\text{Cl} > \text{CH}_3\text{I} > \text{CH}_3\text{Br}$

- Q.30** The product of the reaction $\text{CH}_2 = \text{CH} - \text{CCl}_3 + \text{HBr}$ is **[RPET 2000]**
 [1] $\text{CH}_3 - \text{CH}(\text{Br}) - \text{CCl}_3$ [2] $\text{CH}_2(\text{Br}) - \text{CH}_2 - \text{CCl}_3$
 [3] $\text{BrCH}_2 - \text{CHCl} - \text{CHCl}_2$ [4] $\text{CH}_3 - \text{CH}_2 - \text{CCl}_3$
- Q.31** $\text{R-X} + \text{NaOH} \longrightarrow \text{ROH} + \text{NaX}$, The above reaction is classified as **[RPET 2000]**
 [1] Nucleophilic substitution [2] Electrophilic substitution
 [3] Reduction [4] Oxidation
- Q.32** Decreasing order of reactivity of HX in the reaction $\text{ROH} + \text{HX} \rightarrow \text{RX} + \text{H}_2\text{O}$ **[RPET 2000]**
 [1] $\text{HI} > \text{HBr} > \text{HCl} > \text{HF}$ [2] $\text{HBr} > \text{HCl} > \text{HI} > \text{HF}$ [3] $\text{HCl} > \text{HBr} > \text{HI} > \text{HF}$ [4] $\text{HF} > \text{HBr} > \text{HCl} > \text{HI}$
- Q.33** CF_xCl_y [where $x + y = 4$]. These compounds are not used as refrigerants because **[RPET 2000]**
 [1] These are fluoro carbons [2] These are difficult to synthesis
 [3] They deplete ozone layer [4] None of the these
- Q.34** CHCl_3 and HF lead to the formation of a compound of fluorine of molecular weight 70. The compound is **[RPET 2000]**
 [1] Fluoroform [2] Fluorine monoxide [3] Fluorine dioxide [4] Fluoromethanol
- Q.35** When methyl bromide is heated with Na it gives **[MP PMT 2000]**
 [1] CH_4 [2] C_2H_6 [3] C_2H_4 [4] CH_3OH
- Q.36** The order of reactivities of the following alkyl halides for a SN^2 reaction is **[IIT Screening 2000]**
 [1] $\text{RF} > \text{RCI} > \text{RBr} > \text{RI}$ [2] $\text{RF} > \text{RBr} > \text{RCI} > \text{RI}$ [3] $\text{RCI} > \text{RBr} > \text{RF} > \text{RI}$ [4] $\text{RI} > \text{RBr} > \text{RCI} > \text{RF}$
- Q.37** Preparation of alkyl halides in laboratory is least preferred by **[Delhi PMT 2000]**
 [1] Treatment of alcohols [2] Addition of hydrogen halides to alkenes
 [3] Halide exchange [4] Direct halogenation of alkanes
- Q.38** Which of the following organic compounds will give a mixture of 1-chlorobutane and 2-chlorobutane on addition of HCl **[CPMT 2001]**
 [1] $\text{CH}_3 - \overset{\text{CH}_3}{\underset{|}{\text{C}}} - \text{CH} = \text{CH}_2$ [2] $\text{HC} \equiv \overset{\text{H}}{\underset{|}{\text{C}}} - \text{C} = \text{CH}_2$ [3] $\text{CH}_2 = \text{CH} - \text{CH} = \text{CH}_2$ [4] $\text{CH}_2 = \text{CH} - \text{CH}_2 - \text{CH}_3$
- Q.39** When $\text{CH}_3\text{CH}_2\text{CHCl}_2$ is treated with NaNH_2 the product formed is **[CBSE 2002]**
 [1] $\text{CH}_3 - \text{CH} = \text{CH}_2$ [2] $\text{CH}_3 - \text{C} \equiv \text{CH}$ [3] $\text{CH}_3\text{CH}_2\text{CH} \begin{matrix} \text{NH}_2 \\ \diagdown \\ \text{Cl} \end{matrix}$ [4] $\text{CH}_3\text{CH}_2\text{CH} \begin{matrix} \text{NH}_2 \\ \diagdown \\ \text{NH}_2 \end{matrix}$
- Q.40** Why is chloroform put into dark coloured bottles **[MP PET 2002]**
 [1] To prevent evaporation [2] To prevent from moisture
 [3] To prevent it from oxidation to form phosgene [4] To prevent its reaction with glass
- Q.41** Which of the following is Teflon **[RPMT 2002]**
 [1] $[-\text{CF}_2 - \text{CF}_2 -]_n$ [2] $\text{CF}_2 = \text{CF}_2$ [3] $\text{CF} \equiv \text{CF}$ [4] None of these
- Q.42** AgNO_3 does not give precipitate with CHCl_3 because **[CPMT 2002]**
 [1] CHCl_3 does not ionise in water [2] AgNO_3 does not reacts with CHCl_3
 [3] CHCl_3 is chemically inert [3] None of these
- Q.43** What is the main product of the reaction between 2-methyl propene with HBr **[RPMT 2002]**
 [1] 1-bromo butane [2] 1-bromo-2 methyl propane
 [3] 2-bromo butane [4] 2-bromo-2 methyl propane
- Q.44** Among the following, the molecule with the highest dipole moment is **[IIT Screening 2003]**
 [1] CH_3Cl [2] CH_2Cl_2 [3] CHCl_3 [4] CCl_4

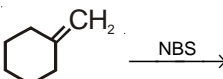
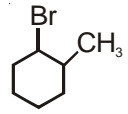
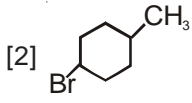
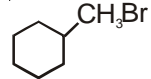
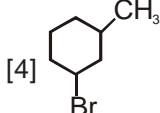
- Q.45** At higher temperature, iodoform reaction is given by [AIIMS 2003]
 [1] $\text{CH}_3\text{CO}_2\text{CH}_3$ [2] $\text{CH}_3\text{CO}_2\text{C}_2\text{H}_5$ [3] $\text{C}_6\text{H}_5\text{CO}_2\text{CH}_3$ [4] $\text{CH}_3\text{CO}_2\text{C}_6\text{H}_5$
- Q.46** Iodoform test is not given by [CPMT 2003]
 [1] 2-pentanone [2] 3-pentanone [3] Ethanol [4] None of these
- Q.47** Which of the following reactions leads to the formation of chloroacetone [RPMT 2003]
 [1] $\text{CHCl}_3 + \text{CH}_3\text{COCH}_3$ [2] $\text{CCl}_4 + \text{Acetone}$ [3] $\text{CHCl}_3 + \text{KOH}$ [4] $\text{CHCl}_3 + \text{HNO}_3$
- Q.48** $\text{CH}_3-\text{CH}_2-\text{CH}_2\text{Br} + \text{KOH}(\text{alc.}) \rightarrow \text{Product}$, Product in above reaction is [RPMT 2003]
 [1] $\text{CH}_3-\text{CH}=\text{CH}_2$ [2] $\text{CH}_3-\text{CH}_2-\text{CH}_3$ [3] [1] and [2] both [4] None of these
- Q.49** 1,2 di-bromo cyclohexane on dehydro halogenation gives [UPSEAT 2003]
 [1]  [2]  [3]  [4] None of these
- Q.50** Wurtz reaction of methyl iodide yields an organic compound X. Which one of the following reactions also yields X. [EAMCET 2003]
 [1] $\text{C}_2\text{H}_5\text{Cl} + \text{Mg} \xrightarrow{\text{dry ether}}$ [2] $\text{C}_2\text{H}_5\text{Cl} + \text{LiAlH}_4 \longrightarrow$
 [3] $\text{C}_2\text{H}_5\text{Cl} + \text{C}_2\text{H}_5\text{ONa} \longrightarrow$ [4] $\text{CHCl}_3 \xrightarrow[\Delta]{\text{Ag powder}}$
- Q.51** Acetyl bromide reacts with excess of CH_3MgI followed by treatment with a saturated solution of NH_4Cl gives [AIEEE 2004]
 [1] Acetyl iodide [2] Acetamide [3] 2-methyl-2-propanol [4] Acetone
- Q.52** Using anhydrous AlCl_3 as catalyst, which one of the following reactions produced ethylbenzene (PhEt) [CPMT pre. 2004]
 [1] $\text{CH}_3-\text{CH}=\text{CH}_2 + \text{C}_6\text{H}_6$ [2] $\text{H}_2\text{C}=\text{CH}_2 + \text{C}_6\text{H}_6$
 [3] $\text{H}_3\text{C}-\text{CH}_3 + \text{C}_6\text{H}_6$ [4] $\text{H}_3\text{C}-\text{CH}_2\text{OH} + \text{C}_6\text{H}_6$
- Q.53** Which of the following is responsible for depletion of the ozone layer in the upper strata of the atmosphere [CPMT pre. 2004]
 [1] Ferrocene [2] Fullerenes [3] Freons [4] Polyhalogens
- Q.54** Which of the following is least reactive in a nucleophilic substitution reaction [CPMT pre. 2004]
 [1] $\text{CH}_2=\text{CHCl}$ [2] $\text{CH}_3\text{CH}_2\text{Cl}$ [3] $\text{CH}_2=\text{CHCH}_2\text{Cl}$ [4] $(\text{CH}_3)_3\text{C}-\text{Cl}$
- Q.55** Chloropicrin is obtained by the reaction of ? [CPMT pre. 2004]
 [1] nitric acid on chlorobenzene [2] chlorine on picric acid
 [3] nitric acid on chloroform [4] steam on carbon tetrachloride
- Q.56** Which of the following will not form a yellow precipitate on heating with an alkaline solution of iodine [CPMT pre. 2004]
 [1] $\text{CH}_3\text{CH}_2\text{CH}(\text{OH})\text{CH}_3$ [2] CH_3OH [3] $\text{CH}_3\text{CH}_2\text{OH}$ [4] $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$
- Q.57** When benzene is treated with acetyl chloride in presence of AlCl_3 gives [RPMT 2004]
 [1] $\text{C}_2\text{H}_5\text{Cl}$ [2] $\text{C}_6\text{H}_5\text{COCH}_3$ [3] CH_3COCH_3 [4] $\text{C}_6\text{H}_5\text{Cl}$
- Q.58** Product formed when C_2H_5 is reacted with ammonical Cu_2Cl_2 is [RPMT 2004]
 [1] C_2H_4 [2] CCl_2 [3] CCl_2H_2 [4] C_2Cu_2
- Q.59** Westrosol is [RPMT 2004]
 [1] Ethylene dichloride [2] Acetylene tetrachloride [3] Acetylene dichloride [4] Trichloro ethene
- Q.60** When acetylene is treated with arsenic trichloride gives [RPMT 2004]
 [1] Lewisite [2] Bakelite [3] Glucoside [4] Boxite

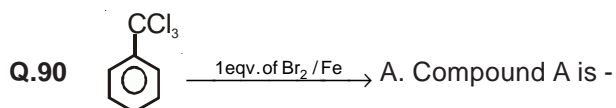
- Q.61** Chloroform is tested before anaesthetic use with [RPMT 2004]
 [1] Fehling solution [2] heating with AgNO_3 and then heated with KOH
 [3] Ammonical Cu_2Cl_2 [4] AgNO_3
- Q.62** Which of the following will give iodoform test [RPMT 2004]
- [1] $\text{CH}_3 - \underset{\text{H}}{\overset{\text{H}}{\text{C}}} - \text{OH}$ [2] CH_3OH [3] $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$ [4] $\text{H}_3\text{C} - \underset{\text{CH}_3}{\overset{\text{CH}_3}{\text{C}}} - \text{OH}$
- Q.63**  [RPMT 2004]
 [1] Salicylic acid [2] Ferric acid [3] Sodium benzoate [4] Salicyl aldehyde
- Q.64** The compound formed on heating chlorobenzene with chloral in the presence of concentrated sulphuric acid is [AIEEE 2004]
 [1] Freon [2] DDT [3] Gammexene [4] Hexachloroethane
- Q.65** Among the following the most reactive towards alcoholic KOH is [AIIMS 2004]
 [1] $\text{CH}_2 = \text{CHBr}$ [2] $\text{CH}_3\text{COCH}_2\text{CH}_2\text{Br}$ [3] $\text{CH}_3\text{CH}_2\text{Br}$ [4] $\text{CH}_3\text{CH}_2\text{CH}_2\text{Br}$
- Q.66** Among the following, the one which reacts most readily with ethanol is [AIIMS 2004]
 [1] p-nitrobenzyl bromide [2] p-chlorobenzyl bromide
 [3] p-methoxybenzyl bromide [4] p-methylbenzyl bromide
- Q.67**  [JEE (SCR) 2005]
- [1]  [2]  [3]  [4] 
- Q.68** Which one of the following functional groups can be identified by iodoform test [VITEEE 2005]
 [1] $-\text{COCH}_3$ [2] $-\text{COOH}$ [3] $-\text{CH}_2\text{OH}$ [4] $-\text{CH}_2-\text{O}-\text{CH}_2-$
- Q.69** Which of the following undergoes nucleophilic substitution exclusively by $\text{S}_{\text{N}}1$ mechanism [CPMT 2005]
 [1] Benzyl chloride [2] Isopropylchloride [3] Chlorobenzene [4] Ethyl chloride
- Q.70** Identify X and Y in the following sequence [Orissa JEE 2005]
 $\text{C}_2\text{H}_5\text{Br} \xrightarrow{\text{X}} \text{product} \xrightarrow{\text{Y}} \text{C}_3\text{H}_7\text{NH}_2$
 [1] X = KCN, Y = LiAlH_4 [2] X = KCN, Y = H_3O^+
 [3] X = CH_3Cl , Y = AlCl_3/HCl [4] X = CH_3NH_2 , Y = HNO_2

- Q.71** One of the following that cannot undergo dehydrohalogenation is - **[J & K 2005]**
 [1] Iso-propyl bromide [2] Ethanol [3] Ethyl bromide [4] None of these
- Q.72** The major product obtained on treatment of $\text{CH}_3\text{CH}_2\text{CHFCH}_3$ with $\text{CH}_3\text{O}^-/\text{CH}_3\text{OH}$ is **[AIIMS 2005]**
 [1] $\text{CH}_3\text{CH}_2\text{CH}(\text{OCH}_3)\text{CH}_3$ [2] $\text{CH}_3\text{CH}=\text{CHCH}_3$
 [3] $\text{CH}_3\text{CH}_2\text{CH}=\text{CH}_2$ [4] $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OCH}_3$
- Q.73** Which of the following is liquid at room temperature - **[AFMC 2005]**
 [1] CH_3I [2] CH_3Br [3] $\text{C}_2\text{H}_5\text{Cl}$ [4] CH_3F
- Q.74** Which of the following haloalkanes is most reactive - **[KCET 2005]**
 [1] 1-chloropropane [2] 1-bromopropane [3] 2-chloropropane [4] 2-bromopropane

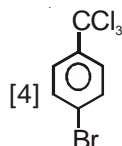
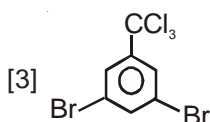
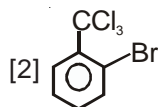
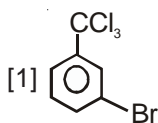
HALOBENZENE

- Q.75** $\text{C}_6\text{H}_5\text{Cl}$ prepared by aniline with : **[IIT 1984]**
 [1] HCl [2] Cu_2Cl_2
 [3] Cl_2 in presence of anhydrous AlCl_3 [4] HNO_2 and then heated with Cu_2Cl_2
- Q.76** An important insecticide is obtained by the action of chloral on chlorobenzene. It is : **[KCET 1989]**
 [1] BHC [2] Gammexene [3] DDT [4] Lindane
- Q.77** $\text{C}_6\text{H}_5\text{CH}_2\text{Cl} + \text{KCN} (\text{aq.}) \rightarrow \text{X} + \text{Y}$
 Compounds X and Y are : **[BHU 1979]**
 [1] $\text{C}_6\text{H}_6 + \text{KCl}$ [2] $\text{C}_6\text{H}_5\text{CH}_2\text{CN} + \text{KCl}$ [3] $\text{C}_6\text{H}_5\text{CH}_3 + \text{KCl}$ [4] None of these
- Q.78** Chlorobenzene is :
 [1] Less reactive than benzyl chloride [2] More reactive than ethyl bromide
 [3] Nearly as reactive as methyl chloride [4] More reactive than isopropyl chloride
- Q.79** What is the decreasing order of reactivity amongst the following compounds towards aromatic electrophilic substitution : **[IIT 1995]**
 I. Chlorobenzene II. Benzene III. Anilinium chloride IV. Toluene
 [1] I > II > III > IV [2] IV > II > I > III [3] II > I > III > IV [4] III > I > II > IV
- Q.80** The commercial uses of DDT and benzene hexachloride are :
 [1] DDT is a herbicide, benzene hexachloride is a fungicide
 [2] Both are insecticides
 [3] Both are herbicides
 [4] DDT is a fungicide and benzene hexachloride is a herbicide
- Q.81** DDT can be prepared by reacting chlorobenzene (in the presence of conc. H_2SO_4) with :
 [1] Cl_2 in ultraviolet light [2] Chloroform
 [3] Trichloroacetone [4] Chloral hydrate
- Q.82** Following equation illustrates : $\text{C}_6\text{H}_5\text{Cl} + 2\text{NaOH} \xrightarrow[200 \text{ atm}]{200-250^\circ\text{C}} \text{C}_6\text{H}_5\text{ONa} + \text{NaCl} + \text{H}_2\text{O}$ **[Bihar CEE 1995]**
 [1] Dow's process [2] Kolbe's process
 [3] Carbylamine test [4] Haloform reaction

- Q.83** Replacement of Cl of chlorobenzene to give phenol requires drastic condition but chlorine of 2,4-dinitrochlorobenzene is readily replaced because : **[CBSE 1997]**
- [1] NO_2 make ring electron rich at ortho and para
 [2] NO_2 withdraw e^- from meta position
 [3] NO_2 donates e^- at meta position
 [4] NO_2 withdraws e^- from ortho/para position
- Q.84** The chlorobenzene is generally obtained from a corresponding diazonium salt by reacting it with : **[MP PMT 2000]**
- [1] Cu_2Cl_2 [2] CuSO_4 [3] Cu [4] $\text{Cu}(\text{NH}_3)_4^{2+}$
- Q.85** The reaction between chlorobenzene and chloral in the presence of concentrated sulphuric acid produces **[Pb. PMT 2001]**
- [1] Gammexane [2] pp-dichloro diphenyl trichloro ethane
 [3] Chloropicrin [4] Benzene hexachloride
- Q.86** Aryl halide is less reactive than alkyl halide towards nucleophilic substitution because : **[Rajasthan PMT 2002]**
- [1] Less stable carbonium ion
 [2] Due to large C-Cl bond energy
 [3] Inductive effect
 [4] Resonance stabilization and sp^2 hybridisation of C attached to halide
- Q.87** Bottles containing $\text{C}_6\text{H}_5\text{I}$ and $\text{C}_6\text{H}_5\text{CH}_2\text{I}$ lost their original labels. They were labelled A and B for testing. A and B were separately taken in test tubes 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 give a yellow precipitate. Which one of the following statements is true for this experiment **[AIIEE 2003]**
- [1] A was $\text{C}_6\text{H}_5\text{I}$ [2] A was $\text{C}_6\text{H}_5\text{CH}_2\text{I}$
 [3] B was $\text{C}_6\text{H}_5\text{I}$ [4] Addition of HNO_3 was unnecessary
- Q.88** The compound formed on heating chlorobenzene with chloral in the presence of conc. H_2SO_4 is : **[AIIEE 2004]**
- [1] Hexachloroethane [2] D.D.T. [3] Freon [4] Gammexene
- Q.89** What will be the product in the following reaction  **[BHU 2005]**
- [1]  [2] 
 [3]  [4] 



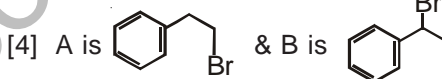
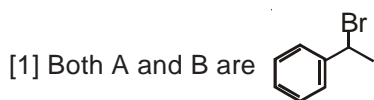
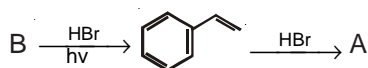
[Orissa JEE 2005]



Q.91 When phenyl magnesium bromide reacts with t-butanol, the product would be - [IIT 2005]

- [1] Benzene [2] Phenol [3] t-butyl benzene [4] t-butyl phenyl ether

Q.92 Analyse the following reaction and identify the nature of A and B [Kerala CET 2005]



Answer Key

Qus.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ans.	2	1	2	4	1	3	1	4	2	4	3	2	1	2	2	2	1	4	2	4
Qus.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Ans.	3	1	2	2	1	1	3	2	3	2	1	1	3	1	2	4	4	4	2	3
Qus.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	1	1	4	3	4	2	1	1	1	2	3	2	3	1	3	2	2	4	4	1
Qus.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Ans.	4	1	1	2	2	3	4	1	2	1	2	2	1	4	4	3	2	1	2	4
Qus.	81	82	83	84	85	86	87	88	89	90	91	92								
Ans.	4	1	4	1	2	4	1	2	1	1	1	3								