



# CHEMISTRY

## BOOKS - ACCURATE PUBLICATION

### HALOALKANES AND HALOARENES

#### Multiple Choice Questions

1. LSD is obtained from

A. KBr

B.  $NH_4Br$

C.  $Br_2$

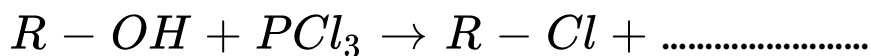
D. aq. KOH

**Answer: A**



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**2. Complete the reaction :**



A.  $H_3PO_4$

B.  $POCl_3$

C.  $H_3PO_3$

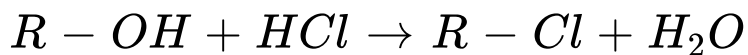
D.  $HCl$

**Answer: C**



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**3. Name the reaction:**



A. Swartz Reaction

B. Groove's Process

C. Darzen's Method

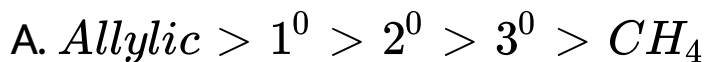
D. Peroxide effect

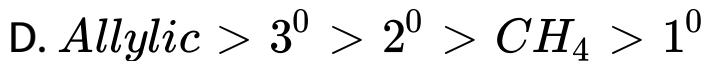
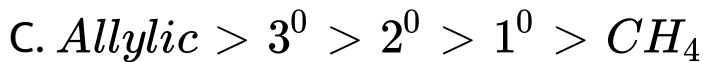
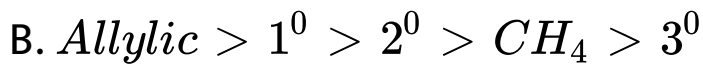
**Answer: B**



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4. The displacement of H from hydrocarbon is of the order:



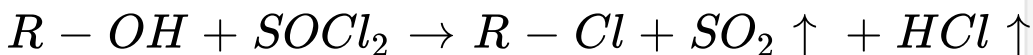


**Answer: B**



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5. Name the reagent in the following reaction :



A. Pyridine

B. Heat

C.  $CCl_4$

D. None of these

**Answer: A**



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6. Peroxide effect can take place with which of these reagents :

A. HCl

B. HI

C. HF

D. HBr

**Answer: D**



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7. How many products are formed on halogenation of methane ( $CH_4$ ) with  $Cl_2$  in presence of heat:

A. One

B. Two

C. Three

D. Four

**Answer: D**



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8. what happens when a piece of cotton is dipped in water?



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9. Ratio of conc. HCl and anhyd.  $ZnCl_2$  in Lucas

Reagent :

A. 1 : 2

B. 1 : 3

C. 1 : 1

D. 1 : 4

**Answer: C**



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**10.** Fluorination of Hydrocarbons can be carried out with which reaction:

A. Finkelstein reaction

B. Sandmeyer reaction

C. Swarts reaction

D. Peroxide effect

**Answer: C**



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## 11. Boiling point of water

A.

*aryliodide > arylbromide > arylchl or ide*

B.

*arylbromide > aryliodide > arylchl or ide*

C.

*arylchl or ide > arylbromide > aryliodide*

D.

*aryliodide > arylchl or ide > arylbromide*

**Answer: A**



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**12.** The p-isomer of dichlorobenzene has higher melting point than O-and M-isomer. Why ?

A. it has symmetrical structure

B. it fits better in crystallattice

C. it results in stronger intermolecular forces  
of attraction

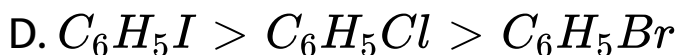
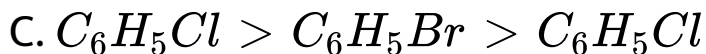
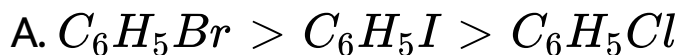
D. all options are correct

Answer: D



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13. What is the correct order of density of these haloarenes :



**Answer: B**



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**14.** Haloalkanes are soluble in water.

A. they cannot form hydrogen bond with water

B. they can form hydrogen bond with water

C. intermolecular forces of haloarenes and benzene are of different nature

D. all options are incorrect

**Answer: A**



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**15. Gold sol can be prepared by**

A. the reaction is highly endothermic

B. the reaction is highly exothermic

C. the reaction results in the formation of  
complex compounds

D. no reaction takes place

**Answer: B**



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**16.** Which of the following haloarenes is prepared, by shaking diazonium salt with aqueous KI solution

A. Chloro benzene

B. Bromo benzene

C. Fluoro benzene

D. Iodo benzene



**Answer: D**



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**17.** The reaction forming fluoro benzene from benzene diazonium chloride is known as:

- A. Gattermann reaction
- B. Sandmeyer reaction
- C. Balz -schiemann reaction
- D. Borodine Hunsdiecker reaction

**Answer: C**



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**18.** Phenol does not react with halogen acids to form haloarenes because

A. phenols cannot be easily protonated

B. carbon oxygen bond in phenol has double bond character

C. cleavage of carbon oxygen bond in phenol is difficult

D. all options are correct

**Answer: D**



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**19.** In diamond, carbon atom is

A.  $sp$

B.  $sp^3$

C.  $sp^2$

D. None of these

**Answer: B**



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**20.** Which oxidizing agent is used in preparation of Iodo benzene from benzene :

- A. sulphuric acid
- B. nitric acid
- C. iodic acid
- D. hydrogen peroxide

**Answer: C**



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21. The reaction of  $CH_2 = CH_2 + HBr \rightarrow CH_3CH_2Br$  is an example of

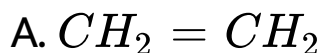
- A. nucleophilic addition
- B. electrophilic addition
- C. free radical addition
- D. nucleophilic substitution

**Answer: B**



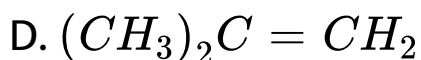
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22. The compound which reacts with HBr obeying Markownikow's rule is



B. trans-but -2- ene

C. cis-but -2-ene



**Answer: D**



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**23. C — X bond is strongest in:**



**Answer: C**



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24. Alkyl halides react with KCN to give as the major product

A. isocyanide

B. nitriles

C. Amines

D. Nitro compounds

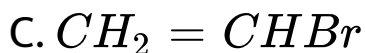
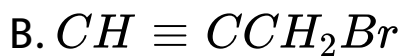
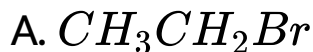
**Answer: B**



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25. Which of the following cannot form Grignard reagent

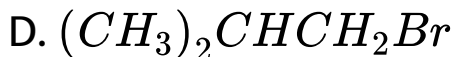
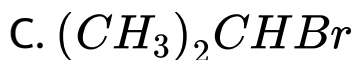
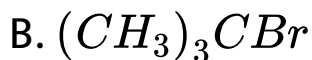


Answer: C



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26. Beta elimination is not possible in



**Answer: A**



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27. Which of the following statements pertaining to S<sub>N</sub>2' reaction are true

1. The rate of reaction is independent of the concentration of the nucleophile
2. The nucleophile attacks carbon on the side of the nucleophile molecule opposite of the group being displaced
3. The reaction proceeds with the simultaneous Bond formation and Bondrupture
4. The partial Racemization of an optically active substance results

A. 1, 4

B. 1, 3, 4

C. 2,3

D. All of these

**Answer: C**



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**28.** When alkyl halides are treated with  $Ag_2O$  they give

A. Ether

B. Ester

C. Alcohol

D. Alkene

**Answer: A**



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**29. Wurtz reaction involves**

A. Two molecules of aryl halide

B. Two molecules of alkyl halide

C. One molecule each of alkyl and aryl halides

D. One molecule each of alkyl halide and aromatic hydrocarbon

**Answer: B**



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**30.** Which of the following is not a terminal dihalide

A.  $CH_2Br_2$

B.  $CH_2BrCH_2Br$

C.  $CH_3CHBrCHBrCH_3$

D. none of these

**Answer: C**



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**31.** Translate the following statements into chemical equation and balance the equations :  
carbon disulphide burns in air to give carbon dioxide and sulphur dioxide.



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32. A substance which rotates the plane of polarised light to the right are designated by the sign:

A. d

B. c

C. l

D. r

**Answer: A**



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33. Out of 2-chloropentane and 2-chloro-2-methylpentane, which one is having chiral carbon atom ? Explain.

A. Cup

B. Hand

C. Fork

D. Sphere

**Answer: B**



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**34.** The process of separation of a racemic mixture into d or l forms is called :

- A. Evaporation
- B. Chromatography
- C. Resolution
- D. Distillation

**Answer: C**



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**35.** The carbon which is bonded to four different atoms or group of atoms is :

A. Chiral

B. Arhiral

C. Both (a) and (b)

D. None of the above

**Answer: A**



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36. The reaction between alkyl halides and sodium metal is called :

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

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

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

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

**Answer: D**



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**37.** Is the following compound chiral (optically active)? *cis* -  $[CrCl_2(ox)_2]^{3-}$  -

- A. Lactic acid
- B. Tartaric acid
- C. Methyl butane
- D. Glucose

**Answer: C**



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**38.** The isomers which can be inter converted through rotation around a single bond are :

A.

B.

C.

D.

**Answer: B**



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**39. An isomer of ethanol is :**

A. Dimethyl ether

B. Methanol

C. Diethyl ether

D. Acetone

**Answer: A**



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40. Which of the following compound is covalent?

A. Bromochloroiodo methane

B. 2-Chlorobutane

C. 2-Chloro-2-methylpentane

D. Butan-2-ol

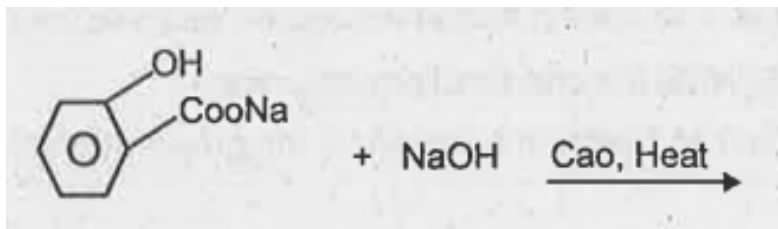
**Answer: C**



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41. Complete the following reaction:-



- A. Wurtz Reaction
- B. Fittig Reaction
- C. Wurtz Fittig Reaction
- D. Ullmann Reaction

**Answer: B**



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**42.** Haloarenes are less reactive than haloalkanes due to

A. Resonance Effect

B. Difference in hybridisation state of carbon atoms

C. both (a) and (b)

D. none of these

**Answer: C**



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43. Haloarenes after reduction with  $LiAlH_4$  give

A. Phenol

B. Nitro phenol

C. Benzene

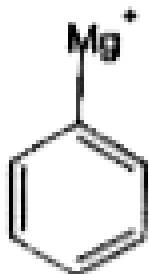
D. None of these

**Answer: C**

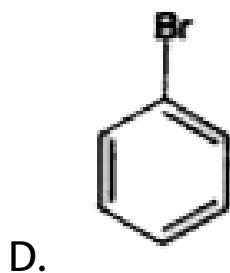
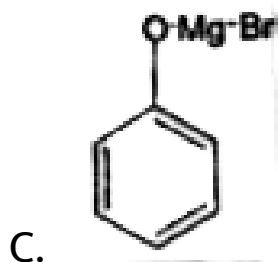


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44. Grignard's Reagent is

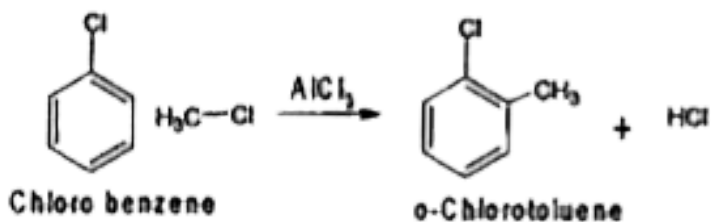


B. 



Answer: B

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The above reaction is

A. Friedel craft's alkylation

B. Friedel Craft's Acylation

C. Fries Rearrangement

## D. Gattermann Reaction

**Answer: A**



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**46.** Chlorobenzene can be prepared from Benzene diazonium chloride by



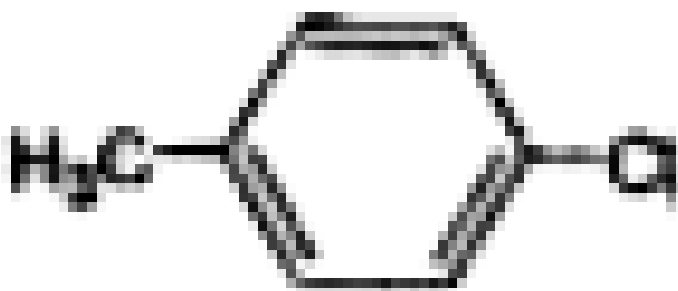
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47. The reaction of Iodo benzene with copper powder in a sealed tube to give diphenyl is called:



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48. The IUPAC name of the following is



A. 1-Chloro-3-methyl benzene

B. 4-Chlorotoluene

C. 1-Methyl-4-chloro benzene

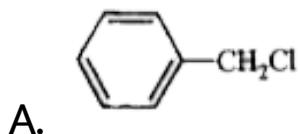
D. 4-Methyl chloro benzene

**Answer: B**



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**49.** Which of the following is an aryl halide

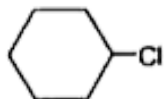




B.



C.

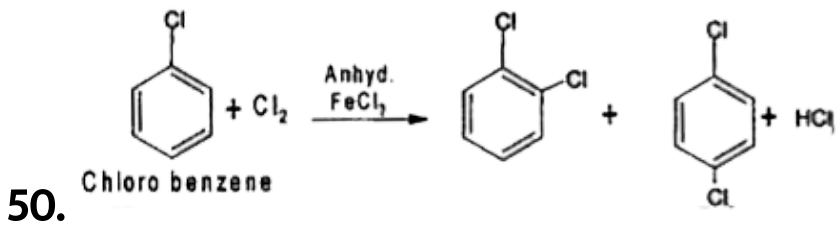


D. None of these

**Answer: C**



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This reaction is called:

- A. Halogenat ion
- B. Nitration
- C. Sulphonation
- D. Reduction

**Answer: A**



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## 1 Mark Questions

1. Define Haloalkanes ?



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2. Define Haloalkanes ?



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3. Define polymethylene dihalides?



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4. Discuss the following:

Geminal dihalides



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5. Which one of the following has the highest dipole moment ?



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6. What is a racemic mixture ?



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7. What is racemisation ?



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8. Explain briefly

Resolution





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9. Define specific heat.



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10. Define Chiral ?



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11. Define Chirality ?



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**12.** Define Optical activity.



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**13.** Define Enantiomers ?



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**14.** Name the reagent used to convert 1 chloro propane to 1 nitro propane.



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15. Name the reagent used to convert bromoethane to Ethene ?



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16. Which metal is used in the preparation of Grignard's reagent from haloalkanes ?



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**17.** How does chlorobenzene react with sodium in the presence of ether ? What is the name of reaction ?



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**18.** How does iodobenzene react with copper powder in a sealed tube ? What is the name of reaction ?



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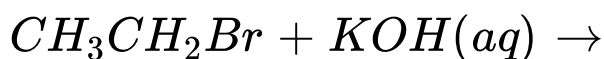
19. Chlorobenzene react with methyl chloride in the presence of sodium in anhydrous ether ?

What is the name of reaction.



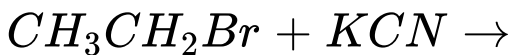
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20. Complete the following reaction :



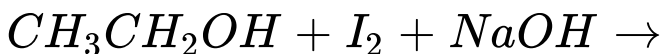
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21. Complete the following reaction ?



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22. Complete the following reactions :



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



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**24.** Give two uses of iodoform.



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**25.** Give two uses of freons



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26. How can you separate a magnetic substance from a mixture?



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## 2 Or 5 Marks Questions

1. Chloroform contains chlorine but does not give reaction with  $AgNO_3$  why?



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2. Out of HCl and  $SOCl_2$  which is preferred for converting ethanol into chloroethane ? Explain.



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3. Why is chloroform stored in dark coloured bottles ?



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4. Why a small amount of ethyl alcohol is usually added to chloroform bottles ?





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5. Why is Vinyl chloride less reactive than ethyl chloride ?



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6. Why is sulphuric acid not used during the reaction of alcohols with KI?



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7. Haloarenes are insoluble in water but soluble in benzene. Explain.



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8. The p-isomer of dichlorobenzene has higher melting point than O-and M-isomer. Why ?



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





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**10.** Write short notes on

Swarts reaction



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**11.** How Sandmeyer's reaction differs from Gattermann's reaction.



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**12.** Alkyl halides though polar, are immiscible with water, why ?



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**13.** Give different Enantiomers of Butanol-2.



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**14.** Give different Enantiomers of 2 chlorobutane.



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15. What is iodoform test ?



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16. How is DDT prepared from chlorobenzene ?

Give the chemical equation only.



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17. Give the reaction chloroform with alcoholic

KOH.



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18. Why is Wurtz reaction not suitable for the preparation of odd number alkanes ?



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19. Write two environmental effects of dichloromethane.



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**20.** Explain why

Grignard reagents should be prepared under anhydrous conditions.



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**21.** Iodoform gives a precipitate with silver nitrate on heating while chloroform does not ?



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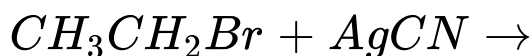
22. How will you convert.

Aniline into chlorobenzene.



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23. Complete the following reaction :



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4 Marks Questions

1. Difference between Ape and Man.



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2. Difference between Haloalkene and Haloarenes?



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3. Explain with example  $S_{N1}$  mechanism.



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4. Explain  $SN^2$  mechanism ?



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5. Explain the reactivity of  $SN^2$  mechanism ?



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6. Explain the reactivity of  $SN_1$  reaction ?



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7. The dipole moment of chlorobenzene is lower than that of cyclohexyl chloride. Explain.



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8. Why the treatment of alkyl chloride with silver nitrite forms nitroalkane and with potassium nitrite forms Alkyl nitrite ?



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**9.** Reaction of an alkyl halide with KCN and AgCN gives different products ? Explain.



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**10.** The treatment of alkyl chlorides with aqueous KOH leads to the formation of alcohols but in presence of alcoholic KOH, alkenes are major products. Explain.



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**11.** Give the following reactions:

Fitting reaction



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**12.** Explain the following reaction: Friedel Craft

Acylation



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**13.** Explain the following reaction: Hunsdicker

reaction



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**14.** Write the following reactions :

Friedel Craft alkylation.



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**15.** Explain the following reactions:

Balz Schiemann reaction.



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**16.** Explain the following :

Sulphonation of haloarenes.



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**17.** Write the following reactions

Sandmeyer reaction



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**18.** Explain the following reaction : Finckelstein

reaction





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19. Why alkenes are more reactive than alkanes?



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True And False 1 Mark

1. The dipole moment of  $CH_3F$  is larger than that of  $CH_3Cl$ .



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2. In general, alkyl halides are more reactive than aryl halides.



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3. What is wind energy? What is the advantage of wind energy?



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4. 2,3,4-trichloropentane has three asymmetric carbon atoms.



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5. Chlorobenzene and benzyl chloride can be distinguished by boiling with aqueous KOH followed by acidification with dil  $HNO_3$  and subsequent treatment with  $AgNO_3$  solution.



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6. Iodide ion is a better nucleophile than bromide ion.



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7. How will you prove that soil contain air in it?



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8. 1,1-Dichloroethane reacts with aqueous KOH to give ethanol.

A. True

B. False

C.

D.

**Answer: TRUE**



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**9. Mention two uses of air?**



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**10. Boiling point of iodobenzene is more than that of bromobenzene.**

A. True

B. False

C.

D.

**Answer: TRUE**



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