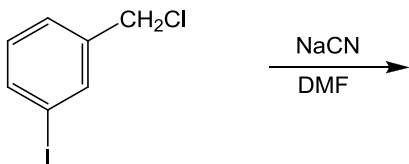
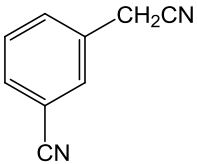


## TOPIC : ORGANIC COMPOUNDS CONTAINING HALOGENS

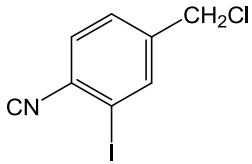
1. When primary amine reacts with chloroform in ethanolic KOH, then the product is  
 (a) an isocyanide (b) an aldehyde  
 (c) a cyanide (d) an alcohol
2. The compound formed on heating chlorobenzene with chloral in the presence of concentrated sulphuric acid, is  
 (a) gammexane  
 (b) hexachloroethane  
 (c) freon  
 (d) DDT
3. Tertiary alkyl halides are practically inert to substitution by  $S_N2$  mechanism because of  
 (a) steric hindrance (b) inductive effect  
 (c) instability (d) insolubility
4. Elimination of bromine from 2-bromobutane results in the formation of  
 (a) predominantly 2-butyne  
 (b) predominantly 1-butene  
 (c) predominantly 2-butene  
 (d) equimolar mixture of 1 and 2-butene
5. The structure of the major product formed in the following reaction  



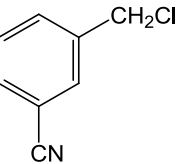
 is  



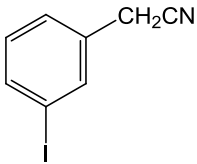
(a)



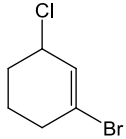
(b)





(c)



(d)
6. The IUPAC name of the compound shown below is  



 (a) 2-bromo-6-chlorocyclohexene-1-ene  
 (b) 6-bromo-2-chlorocyclohexene  
 (c) 3-bromo-1-chlorocyclohexene  
 (d) 1-bromo-3-chlorocyclohexene
7. Fluorobenzene ( $C_6H_5F$ ) can be synthesized in the laboratory  
 (a) by heating phenol with HF and KF  
 (b) from aniline by diazotization followed by heating the diazonium salt with  $BF_3$   
 (c) by direct fluorination of benzene with  $F_2$  gas  
 (d) by reacting bromobenzene with NaF solution
8. Phenyl magnesium bromide reacts with methanol to give  
 (a) a mixture of anisole and  $Mg(OH)Br$   
 (b) a mixture of phenol and  $Mg(OMe)Br$   
 (c) a mixture of toluene and  $Mg(OH)Br$   
 (d) a mixture of benzene and  $Mg(Me)Br$
9.  $CH_3Br + Nu^- \rightarrow CH_3 - Nu + Br^-$   
 The decreasing order of the rate of the above reaction with nucleophiles ( $Nu^-$ ) (A) to (D) is  
 $[Nu^- = (A) PhO^-, (B) AcO^-, (C) HO^-, (D) CH_3O^-]$   
 (a)  $D > C > B > A$  (b)  $D > C > A > B$   
 (c)  $A > B > C > D$  (d)  $B > D > C > A$
10. An alkyl halide may be converted into an alkene by  
 (a) Addition (b) Substitution  
 (c) Elimination (d) Hydrogenation
11. Which of the following alkyl halides has the maximum density?  
 (a)  $C_2H_6Cl$  (b)  $C_2H_5Br$   
 (c)  $C_2H_5I$  (d)  $C_2H_6F$
12. Chlorobenzene on reaction with  $CH_3Cl$  in the presence of  $AlCl_3$  will give  
 (a) Toluene  
 (b) m-Chloro toluene  
 (c) p-Chloro toluene  
 (d) A mixture of o- and p-chlorotoluene

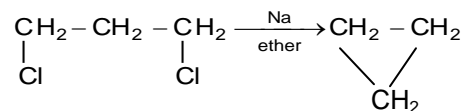
13. 2, 2-Dichloropropane on alkaline hydrolysis gives  
 (a) 2, 2-Propanediol (b) Propanol  
 (c) Propanone (d) Ethanal
14. If chloroform is left open in the air in the presence of sunlight  
 (a) Explosion takes place  
 (b) Polymerization takes place  
 (c) Poisonous gas phosgene is formed  
 (d) No reaction takes place
15. Geminal dihalides on hydrolysis give  
 (a) Ketones  
 (b) Aldehydes  
 (c) Ketones and aldehydes  
 (d) Alcohols
16. When ethyl iodide is treated with moist silver oxide, the product formed is  
 (a)  $C_2H_5OH$  (b)  $C_2H_5OC_2H_5$   
 (c)  $CH_2 - CH_2$  (d)  $CH_3CHO$   

17. When chloroform is exposed to air and sunlight, it gives  
 (a) Mustard gas (b) Lewisite  
 (c) Carbonyl chloride (d) Carbon tetrachloride
18. NBS is a specific reagent for  
 (a) Nucleophilic substitution  
 (b) Electrophilic substitution  
 (c) Allylic substitution  
 (d) Electrophilic addition
19.   $\xrightarrow[AICl_3]{CH_2Cl}$  X. The product X is  
 (a) Benzyl chloride (b) Benzal chloride  
 (c) Benzo chloride (d) Diphenyl methane
20. 'Pyrene' is the trade name of ..... when used as fire extingulisher  
 (a)  $CO_2$  (b)  $CHCl_3$   
 (c)  $CCl_4$  (d)  $CH_2Cl_2$
21. C-X bond is strongest in  
 (a)  $CH_3Cl$  (b)  $CH_3Br$   
 (c)  $CH_3F$  (d)  $CH_3I$
22. The reaction  

$$CH_2 = CH - CH_3 + HBr \rightarrow CH_3 - \overset{\overset{Br}{|}}{CH} - CH_3$$
 is  
 (a) Nucleophilic addition  
 (b) Electrophilic addition  
 (c) Electrophilic substitution  
 (d) Free radical addition
23. Which of the following has highest chlorine content?  
 (a) Pyrene (b) D.D.T.  
 (c) Chloral (d) Gammexane
24. The best reagent for converting alcohols to alkyl chlorides is  
 (a)  $PCl_5$  (b)  $PCl_3$   
 (c)  $HCl/ZnCl_2$  (d)  $SOCl_2$
25. Which of the following halides is not a primary halide ?  
 (a) iso-Pentyl chloride (b) neo-Pentyl chloride  
 (c) iso-Butyl chloride (d) iso-Propyl chloride
26. Iodobenzene can be converted into diphenyl by  
 (a) Wurtz reaction (b) Wurtz-Fittig reaction  
 (c) Ullmann reaction (d) Frankland reaction
27. During chlorination of benzene using  $Cl_2$  in the presence of  $FeCl_3$ , the attacking species is  
 (a)  $Cl^-$  (b)  $Cl^+$   
 (c)  $Cl_2$  (d)  $FeCl_4^-$
28. Chloroalkanes can be converted into iodoalkanes by  
 (a) Frankland reaction  
 (b) Finkelstein reaction  
 (c) Balz-Schiemann reaction  
 (d) Hunsdiecker reaction
29. Benzene diazonium chloride can be converted into chlorobenzene by  
 (a) Gattermann reaction  
 (b) Sandmeyer reaction  
 (c) Both of the above  
 (d) None of these

30. When silver propionate is treated with  $\text{Br}_2$  in  $\text{CCl}_4$  as solvent, the product is  
 (a) Propionyl bromide (b) n-Propyl bromide  
 (c) iso-Propyl bromide (d) Ethyl bromide
31. Acetylene is treated with excess  $\text{HBr}$  and the resultant compound is then heated with zinc dust. The final product will be  
 (a) Ethylene (b) Acetylene  
 (c) 1-Butene (d) 2-Butene
32. For the reaction  
 $\text{C}_2\text{H}_5\text{OH} + \text{HX} \rightarrow \text{C}_2\text{H}_5\text{X} + \text{H}_2\text{O}$ ,  
 the order of reactivity is  
 (a)  $\text{HCl} > \text{HBr} > \text{HI}$  (b)  $\text{HI} > \text{HBr} > \text{HCl}$   
 (c)  $\text{HBr} > \text{HCl} > \text{HI}$  (d)  $\text{HI} > \text{HCl} > \text{HBr}$
33. Identify Z in the following sequence  
 $\text{CH}_3\text{CH}_2\text{I} \xrightarrow{\text{KCN}} \text{X} \xrightarrow{\text{Conc. HCl}} \text{Y} \xrightarrow[\Delta]{\text{dil. HCl}} \text{Z}$   
 (a)  $\text{CH}_3\text{COCl}$  (b)  $\text{CH}_3\text{CONH}_2$   
 (c)  $\text{CH}_3\text{COOH}$  (d)  $\text{CH}_3\text{CH}_2\text{COOH}$
34. 2-Chloro-2-methylbutane, on reaction with alc.  $\text{KOH}$  gives X as the major product, X is  
 (a) 2-Methyl-1-butanol (b) 2-Methyl-1-butene  
 (c) 2-Methyl-2-butene (d) 2-Methyl-2-butanol
35. Aryl halides are less reactive towards nucleophiles than alkyl halides due to  
 (a) Resonance (b) Stability of carbocations  
 (c) High boiling point (d) None of the above
36. The reaction described below is  

$$\begin{array}{c} \text{CH}_3(\text{CH}_2)_5 \\ \diagup \\ \text{H} - \text{C} - \text{Br} \\ \diagdown \\ \text{H}_3\text{C} \end{array} \xrightarrow{\text{OH}^-} \begin{array}{c} \text{CH}_3(\text{CH}_2)_5 \\ \diagup \\ \text{HO} - \text{C} \\ \diagdown \\ \text{CH}_3 \end{array}$$
  
 (a)  $\text{E}^2$  (b)  $\text{S}_{\text{N}}1$   
 (c)  $\text{S}_{\text{N}}^0$  (d)  $\text{S}_{\text{N}}^2$
37. Carbylamine test is performed in alcoholic  $\text{KOH}$  by heating a mixture of  
 (a) Chloroform and silver powder  
 (b) Trihalogenated methane and a primary amine  
 (c) An alkyl halide and a primary amine  
 (d) An alkyl cyanide and a primary amine

38. The reaction,



is known as

- (a) Wurtz reaction  
 (b) Fitting reaction  
 (c) Wurtz-Fitting reaction  
 (d) Freund reaction
39. Which of the following nucleophiles would react through  $\text{S}_{\text{N}}^2$  mechanism most readily ?  
 (a)  $\text{:OH}^-$  (b)  $\text{H}_2\ddot{\text{O}}$   
 (c)  $\ddot{\text{N}}\text{H}_3$  (d)  $\text{:OR}^-$
40. Reactivity of alkyl halides towards dehydrohalogenation reaction is  
 (a)  $1^\circ > 2^\circ > 3^\circ$  (b)  $3^\circ > 1^\circ > 2^\circ$   
 (c)  $3^\circ > 2^\circ > 1^\circ$  (d)  $2^\circ > 1^\circ > 3^\circ$
41. 
$$\text{Cyclohexyl-OH} \xrightarrow{\text{PBr}_3} \text{X} \xrightarrow{\text{NH}_3} \text{Y}$$
  
 The compound Y in the above sequence is  
 (a) Cyclohexane  
 (b) Cyclohexylamine  
 (c) 2-Bromocyclohexylamine  
 (d) 4-Bromocyclohexylamine
42. Which of the following halides can be made in good yield by free radical halogenation of parent hydrocarbon ?  
 (a)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{Cl}$  (b)  $\text{CH}_3 - \overset{\text{CH}_3}{\underset{\text{CH}_3}{\text{C}}} - \text{CH}_2\text{Cl}$   
 (c)  $\text{CH}_3\text{CH}_2\underset{\text{Cl}}{\text{CH}}\text{CH}_3$  (d)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{Cl}$
43. Benzyl chloride ( $\text{C}_6\text{H}_5\text{CH}_2\text{Cl}$ ) can be prepared from toluene by chlorination with  

$$\begin{array}{cccc} \text{SO}_2\text{Cl}_2 & \text{SOCl}_2 & \text{Cl}_2 & \text{NaOCl} \\ \text{I} & \text{II} & \text{III} & \text{IV} \end{array}$$
  
 (a) I, II and III (b) I and III  
 (c) II and III (d) All of the above

44. The order of reactivity of various alkyl halides towards  $S_N1$  reaction is
- (1)  $3^\circ > 2^\circ > 1^\circ$                       (b)  $1^\circ > 2^\circ > 3^\circ$   
 (3)  $3^\circ = 2^\circ = 1^\circ$                       (4)  $1^\circ > 3^\circ > 2^\circ$
45. Dipole moment is shown by
- (a) 1, 4-Dichlorobenzene  
 (b) cis-1, 2-dichloroethylene  
 (c) trans-1, 2-dichloroethylene  
 (d) Tetrachloromethane
46. Which of the following statements are not correct ?
- (a) Chlorobenzene is more reactive than benzene towards electrophilic substitution reactions  
 (b) C-Cl bond in chlorobenzene is less polar than in  $CH_3Cl$   
 (c) Chlorobenzene is less reactive than  $CH_3Cl$  towards nucleophilic substitution reactions  
 (d) In chlorobenzene further substitution takes place at ortho and para positions
47. neo-Pentyl chloride on dehydrohalogenation (using low conc. of base) yields mainly
- (a) 2-Methylbut-2-ene  
 (b) 2-Methylbut-1-ene  
 (c) 3-Methylbut-1-ene  
 (d) 2-Pentene
48. Arrange the following compounds in order of increasing dipole moment
- Toluene (I)                      m-Dichlorobenzene (II)  
 o-Dichlorobenzene (III)    p-Dichlorobenzene (IV)
- (a)  $I < IV < II < III$                       (b)  $IV < I < II < III$   
 (c)  $IV < I < III < II$                       (d)  $IV < II < I < III$
49. Which of the following statements is not correct ?
- (a) C-Cl bond in vinyl chloride is less polar than in  $CH_3Cl$   
 (b) C-Cl bond in vinyl chloride is stronger than in  $CH_3Cl$   
 (c) C-Cl bond in vinyl chloride is shorter than in  $CH_3Cl$   
 (d) Vinyl chloride undergoes nucleophilic substitution more readily than  $CH_3Cl$
50. Replacement of Cl of chlorobenzene to give phenol requires drastic conditions but chlorine of 2, 4-dinitrochlorobenzene is readily replaced because
- (a)  $-NO_2$  makes the ring electron rich at ortho and para positions  
 (b)  $-NO_2$  withdraws electrons at meta position  
 (c)  $-NO_2$  donates electrons at meta-position  
 (d)  $-NO_2$  withdraws electrons at ortho and para positions

# ANSWERS KEY

1	A	11	D	21	C	31	D	41	A
2	D	12	D	22	B	32	B	42	B
3	A	13	C	23	A	33	D	43	B
4	C	14	C	24	D	34	C	44	A
5	D	15	C	25	D	35	A	45	B
6	C	16	A	26	C	36	D	46	A
7	B	17	C	27	B	37	B	47	A
8	B	18	C	28	B	38	D	48	B
9	A	19	D	29	C	39	D	49	D
10	C	20	C	30	D	40	C	50	D