UNIT-X. HALO ALKANES AND HALOARENES

SUB TOPIC-I : PREPARATION AND PROPERTIES OF ALKYL HALIDES

1. **The poisonous gas obtained by exposing chloroform to air and sunlight is :**

1) CH_2Cl_2 2) $CoCl_2$ 3) CH_2O 4) CH_3Cl

2. $CH_3OH \xrightarrow{PI_3} (A) \xrightarrow{KCN} (B) \xrightarrow{Hydrolysis} (C)$ **. The compound (C) is:**

1) CH_3OH 2) HCOOH 3) CH_3CHO 4) CH_3COOH

3. $CH_3Cl \xrightarrow{KCN} (A) \xrightarrow{H^+/H_2O} (B)$

1) CH_3NH_2 2) HCOOH 3) CH_3COOH 4) CH_3COCH_3

4. **A sample of chloroform before using as an anaesthetic, is tested by:**

1) Fehling's solution 2) Ammonical cuprous chloride

3) Ammonical silver nitrate solution

4) Silver nitrate solution after boiling with alcoholic KOH

5. **Which one of the following statements is wrong?**

1) Lower alkyl halides are either colorless gases or volatile liquids

2) Alkyl halides are highly soluble in water

3) Alkyl halides burn easily with green edged flame

4) The higher alkyl halides are colorless solids

6. **Which will be obtained by boiling CH_2Cl_2 with caustic soda?**

1) Sodium oxalate 2) Sodium acetate 3) Sodium formate 4) Ethyl alcohol

7. **Which one of the following statement is wrong?**

1) Iodoform is used as an antiseptic 2) Chloroform can be used as an anaesthetic

3) Chloropicrin is used as an insecticide 4) Chloretone is used as an antiseptic

8. **Decreasing order of reactivity of alkyl halide is**

1) RI > RCl > RBr 2) RBr > RCl > RI 3) RI > RBr > RCl 4) RCl > RBr > RI

9. **A mixture of 1-chlorobutane and 2-chlorobutane when treated with alcoholic KOH, gives**

1) 1-butene 2) 2-butene

3) isobylene 4) a mixture of 1-butene and 2-butene

10. **Which of the following processes does not occur during formation of $CHCl_3$ from ethyl alcohol and bleaching powder ?**

1) Oxidation 2) Chlorination 3) Hydrolysis 4) Reduction

11. **For the reaction,** $C_2H_5OH + HX \xrightarrow{ZnX_2} C_2H_5X$

The decreasing order of reactivity of halogen acids is:

1) HI > HCl > HBr 2) HI > HBr > HCl 3) HCl > HBr > HI 4) HBr > HI > HCl

12. $(CH_3)_2 CHCl + NaI \rightarrow (CH_3)_2 CHI + NaCl$ **. The above reaction is known as :**

1) Finkelstein reaction 2) Stephens reaction 3) Kolbe's reaction 4) Wurtz reaction

13. **Ethyl ortho formate is formed by heating …… with sodium ethoxide**

1) HCOOH 2) C_2H_5OH 3) $CHCl_3$ 4) CH_3CHO

14. **Pure chloroform may be prepared by**

1) Chlorination of methane 2) Partial reduction of CCl_4

3) the action of bleaching powder and alkali on ethanol

4) distilling chloral hydrate with conc.aqueous alkali solution

15. **Which is detected by carbylamine test?**

1) H_2NCONH_2 2) CH_3CONH_2 3) $C_2H_5NH_2$ 4) All of these

16. **In which of the following compounds, carbon exhibits a valency of 4 but oxidation state-2 ?**

1) HCHO 2) CH_3Cl 3) CH_2Cl_2 4) $CHCl_3$

17. **The antiseptic action of CHI_3 is due to :**

1) Iodoform itself 2) liberation of free iodine

3) Partially due to iodine and partially due to CHI_3 itself

4) none of the above

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

1) $C_2H_6(excess) + Cl_2 \xrightarrow{UV\ light}$ 2) $C_2H_6 + Cl_2 \xrightarrow{Dark,\ Room\ temp.}$

3) $C_2H_6 + Cl_2(excess) \xrightarrow{UV\ light}$ 4) $C_2H_6 + Cl_2 \xrightarrow{UV\ light}$

19. **Which one of the following has antiseptic property ?**

1) Dichloromethane 2) Tri iodomethane

3) Trifluoromethane 4) Tetrachloro methane

20. **1-Bromopropane and 2-bromopropane on treatment with sodium in presence of ether gives :**

1) n-hexane 2) 2, 3-dimethyl butane

3) 2-methyl pentane 4) a mixture of all these different alkanes

21. **Chloroform on treatment with phenol in presence of caustic alkali forms salicylaldehyde. This reaction is known as :**

1) Carbylamine reaction 2) Cannizzaro's reaction

3) Wurtz – Fittig reaction 4) Reimer – Tiemann reaction

22. $CCl_3CHO \xrightarrow{NaOH} (A) \xrightarrow[Sunlight]{+Cl_2} (B)$. **The product (B) can be used as a:**

1) Fire extinguisher 2) Solvent 3) Insecticide 4) All of these

23. $CH_3C \equiv CH \xrightarrow[(HgSO_4)]{Dil.H_2SO_4} (B) \xrightarrow[(NaOH)]{CHCl_3} (C)$ **Compound (C) can be used as :**

1) An anaesthetic 2) an insecticide 3) a solvent 4) a hypnotic

24. **Isobutyl magnesium bromide with dry ether and absolute alcohol gives**

1) $(CH_3)_2CHCH_2OH$ and CH_3CH_2MgBr 2) $(CH_3)_2CH\ CH_2\ CH_2\ CH_3$ and Mg(OH)Br

3) $(CH_3)_3CH$ and CH_3CH_2OMgBr 4) $(CH_3)_3CH$, $H_2C = CH_2$ and Mg(OH)Br

25. **Which of the following will give a yellow precipitate with I_2/NaOH ?**

1) HCHO 2) $CH_3COOCOCH_3$

3) CH_3CONH_2 4) $CH_3CH(OH)CH_2CH_3$

26. **The number of isomers for the compound with molecular formula $C_2BrClFI$ is :**

1) 3 2) 4 3) 5 4) 6

27. **Match List I (compound) with List II (Use) and select the correct answer using the codes given below in the lists:**

List – I (Compound)	**List – II (Use)**
I)Acetyl salicyclic acid	**A) Insecticide**
II) DDT	**B) Drug**
III) Naphthalene	**C) Moth repellent**
IV) Carbon tetrachloride	**D) Fire extinguisher**
	E) Refrigerant

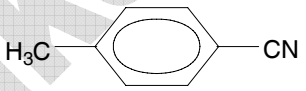
1) I-B, II-A, III-C, IV-D 2) I-E, II-C, III-D, IV-A

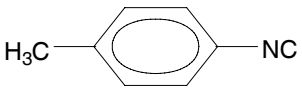
3) I-B, II-C, III-D, IV-A 4) I-E, II-A, III-C, IV-D

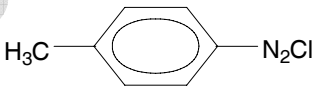
28. **Among the following the molecule with highest dipole moment is :**

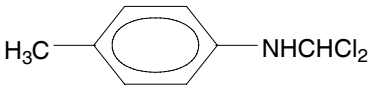
1) CH_3Cl 2) CH_2Cl_2 3) $CHCl_3$ 4) CCl_4

29. **The reaction of chloroform with alcoholic KOH and P-toluidine forms :**

1) 

2) 

3) 

4) 

30. **Which one of the following will not form a yellow precipitate on heating with an alkaline solution of iodine ?**

1) $CH_3CH(OH)CH_3$ 2) $CH_3CH_2CH(OH)CH_3$

3) CH_3OH 4) CH_3CH_2OH

31. **Debromination of mesodibromobutane will give the product as :**

1) n-butane 2) 2-butyne 3) cis-2-butene 4) trans-2-butene

32. **Alkyl halides react with dialkyl copper reagents to give :**

1) Alkenes 2) alkyl copper halides 3) alkanes 4) alkenyl halides

33. **Tertiary alkyl halides are practically inert to substitution by S_N2 mechanism because of:**

1) Insolubility 2) instability 3) inductive effect 4) steric hindrance

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

1) $CH_3CH_2CH(OCH_3)CH_3$ 2) $CH_3CH = CHCH_3$

3) $CH_3CH_2CH = CH_2$ 4) $CH_3CH_2CH_2CH_2OCH_3$

35. **Which among the following is a catalyst for the preparation of Grignard reagent?**

1) Iodine powder 2) Iron powder 3) Activated charcoal 4) Manganese dioxide

36. $CH_3Br + N\bar{u} \rightarrow CH_3 - NU + \overline{Br}$

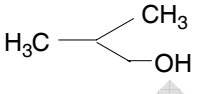
The decreasing order of the rate of the above reaction with nucleophile (Nu^-)A to D is :

[Nu^- = (A) PhO^-, (B) ACO^-, (C) HO^-, (D) CH_3O^-]

1) D > C > A > B 2) D > C > B > A 3) A > B > C > D 4) B > D > C > A

37. **Among the following the one that gives positive iodoform test upon reaction with I_2 and NaOH is:**

1) $CH_3CH_2CH(OH)CH_2CH_3$ 2) $C_6H_5CH_2CH_2OH$

3)  4) $PhCHOHCH_3$

38. **Which of the following compounds has the highest boiling point?**

1) $CH_3CH_2CH_2Cl$ 2) $CH_3CH_2CH_2CH_2Cl$

3) $CH_3CH\,(CH_3)\,CH_2Cl$ 4) $(CH_3)_3C - Cl$

39. **Which can undergo haloform reaction?**

1) $(CH_3)_3$ C-OH 2) $(C_2H_5)_2 C = O$ 3) Acetophenone 4) Benzophenone

40. **Feron used as refrigerant is**

1) $F_2C = CF_2$ 2) CH_2F_2 3) CCl_2F_2 4) CF_4

41. **Maximum number of molecules of CH_3I that can react with a molecule of CH_3NH_2 is :**

1) 3 2) 4 3) 2 4) 1

42. $HC \equiv CH \xrightarrow[H_2SO_4]{HgSO_4} \xrightarrow[HOH]{CH_3MgBr} \xrightarrow{P/Br_2} (X)$ **; (X) is :**

1) $CH_3CH(Br)CH_3$ 2) $CH_3CH_2CH_2Br$ 3) $H_2C = CH - Br$ 4) $BrCH = CH - CH_3$

43. Match List I with List II and pick the correct matching form the codes given below :

List I (Haloalkane / arene)	**List - II**
A) Iodoform	**1) CF_4**
B) BHC	**2) Antiseptic**
C) Freon – 14	**3) Moth repellent**
D) Halothanes	**4) Inhalative anaesthetic**
E) P-Dichlorobenzene	**5) Termite pesticide**

1)A-2, B-4, C-5, D-3, E-1 2) A-2, B-5, C-1, D-4, E-3

3) A-3, B-4, C-2, D-1, E-5 4) A-1, B-3, C-5, D-2, E-4

44. In the reaction, $RX \xrightarrow{Alc.KCN} (A) \xrightarrow{Dil.HCl} (B)$: the product (B) is :

1) alkyl chloride 2) aldehyde 3) carboxylic acid 4) ketone

45. Which of the following haloalkanes is most reactive?

1) 1-chloropropane 2) 1-bromopropane 3) 2-chloropropane 4) 2-bromopropane

46. In the chemical reaction, $CH_3CH_2NH_2 + CHCl_3 + 3KOH \rightarrow (A) + (B) + 3H_2O$ the compounds (A) and (B) are respectively:

1) C_2H_5NC and 3KCl 2) C_2H_5CN and 3KCl

3) $CH_3CH_2CONH_2$ and 3KCl 4) C_2H_5NC and K_2CO_3

47. $C_2H_5Cl \xrightarrow[Ag_2O]{Moist} (A) \xrightarrow[360°C]{Al_2O_3} (B) \xrightarrow{S_2Cl_2} (C)$

In the above sequence of reactions, identify (C) is :

1) Chlorotene 2) Chloropicrin 3) Mustard gas 4) Lewisite gas

48. Ethyl chloride on reduction with $LiAlH_4$ gives compound 'X' as an important product. 'X' on chlorination with one mole of Cl_2 in the presence of light at ordinary temperature gives 'Y' what is 'Y'?

1) C_2H_5OH 2) C_2H_5Cl 3) C_2H_6 4) C_2H_4

49. Which of the following on heating with aqueous KOH produces acetaldehyde?

1) CH_3COCl 2) CH_3CH_2Cl 3) CH_2ClCH_2Cl 4) CH_3CHCl_2

50. Which one of the following does not undergo iodoform reaction?

1) Secondary butyl alcohol 2) Isopropyl alcohol

3) Diethyl ketone 4) Ethyl alcohol

51. On monochlorination of 2-methyl butane, the total number of chiral compounds is:

1) 2 2) 4 3) 6 4) 8

52. Which of the following will have a meso-isomer also ?

1) 2-chlorobutane 2) 2, 3-Dichlorobutane

3) 2, 3-Dichloropentane 4) 2-Hydroxy propanoic acid

53. The compound added to prevent chloroform to form phosgene gas (Poisonous gas) is:

1) CH_3COOH 2) CH_3OH 3) CH_3COCH_3 4) C_2H_5OH

54. Among the halogens, the one which is oxidized by nitric acid is

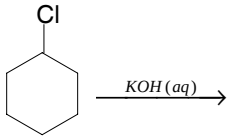
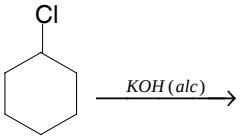
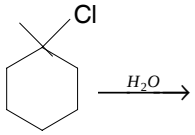
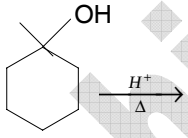
1) iodine 2) chlorine 3) bromine 4) fluorine

55. On treating a mixture of two alkyl halides with sodium metal in dry ether, 2-methyl propane was obtained. The alkyl halides are

1) 1-chloropropane and chloroethane 2) 2- chloropropane and chloroethane

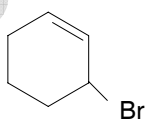
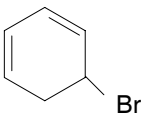
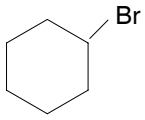
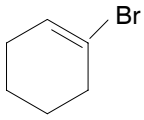
3) 2-chloropane and chloro methane 4) 1- chloropropane and chloromethane

56. Match the following Column I and Column II

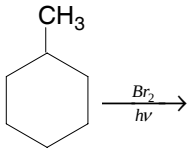
Column I (Reaction)	**Column II (Type of reaction)**
A) 	**p) S_N1**
B) 	**q) S_N2**
C) 	**r) E_1**
D) 	**s) E_2**

	A	B	C	D		A	B	C	D
1)	p	q	r	s	2)	q	s	p	r
3)	p	r	q	s	4)	s	q	r	p

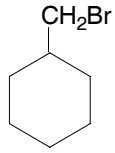
57. Which of the following is fast de-brominated?

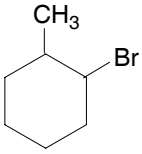
1)  2)  3)  4) 

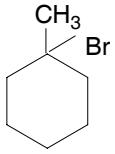
58. The major product obtained in the reaction

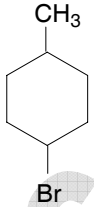


is :

1) 

2) 

3) 

4) 

59. Arrange the following compounds in the decreasing order of the boiling point :

CH_3Br CH_3CH_2Br $CH_3CH_2CH_2Br$ $CH_3CH_2CH_2CH_2Br$

I II III IV

1) I > II > III > IV 2) IV > III > II > I 3) I > III > II > IV 4) III > IV > I > II

60. CCl_4 is used as fire extinguisher because :

1) of its covalent bond 2) of its low boiling point

3) of its high melting point 4) it gives incombustible vapours

61. Match List I with List II and select the correct answer using the codes given below the lists :

List – I (compound)	**List – II (Use)**
A) Chloretone	**i) Monomer**
B) Chloropicrin	**ii) In war and as insecticide**
C) Lindane	**iii) Insecticide**
D) Teflon	**iv) Hypnotic**

Codes

	A	B	C	D
1)	iii	i	iv	ii
2)	i	ii	iii	iv
3)	iv	iii	ii	i
4)	ii	iv	i	iii

62. Match List I with List II and select the correct answer using the codes given below the lists:

List I (Compound)	**List II (Action)**
A) Teflon	**i) Ozone layer depletion**
B) Pyrene	**ii) Non-bio degradable insecticide**
C) DDT	**iii) Non-stick cookwares and insulator**
D) Freon	**iv) Fire extinguisher**

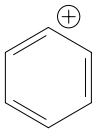
Codes

	A	B	C	D
1)	i	ii	iii	iv
2)	iv	iii	i	ii
3)	iii	iv	ii	i
4)	ii	i	iv	iii

63. The intermediate compound formed in Frankland's reaction is

1) $RZnI_2$ 2) R_2Zn 3) $RZnI$ 4) R_2ZnI

64. Which is the most stable carbocation formed as intermediate in nucleophilic substitution reaction ?

1) $CH_2 = \overset{+}{C}H$ 2)  3) $(CH_3)_3\overset{+}{C}$ 4) 

KEY

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

51) 2 52) 2 53) 4 54) 1 55) 3 56) 2 57) 2 58) 3 59) 2 60) 4

61) 3 62) 3 63) 3 64) 2

SUBTOPIC- II. NUCLEOPHILIC SUBSTITUTION REACTION

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

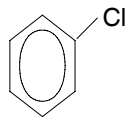
1) The former is S_N2 and later is E_2 reaction

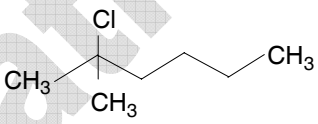
2) The former is E_2 and later is S_N2 reaction

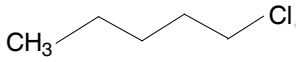
3) The former is S_N1 and later is E_2 reaction

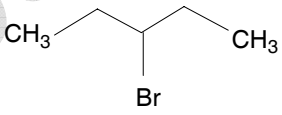
4) The former is E_2 and later is S_N2 reaction

2. Which of the following shows S_N1 reaction most readily?

1) 

2) 

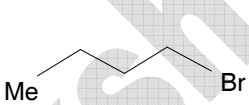
3) 

4) 

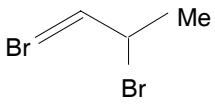
3. Which of the following is most reactive towards nucleophilic substitution reaction?

1) $CH_2 = CH – Cl$ 2) C_6H_5Cl 3) $CH_3CH = CHCl$ 4) $ClCH_2 – CH = CH_2$

4. Consider the following bromides:



(A)



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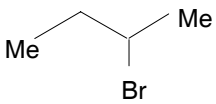


(C)

The correct order of S_N1 reactivity is

1) B > A > C 2) C > B > A 3) A > B > C 4) B > C > A

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

1) An enantiomer of the substrate 2) a product with opposite optical rotation

3) A mixture of diastereomers 4) a single stereoisomer

6. The organic chloro compound, which shows complete stereochemical inversion during a S_N2 reaction, is

1) CH_3Cl 2) $(C_2H_5)_2CHCl$ 3) $(CH_3)_3CCl$ 4) $(CH_3)_2CHCl$

7. **Which of the following is the correct order of decreasing S_N2 reactivity ?**

1) $RCH_2X > R_2CHX > R_3CX$ 2) $R_3CX > R_2CHX > RCH_2X$

3) $R_2CHX > R_3CX > RCH_2X$ 4) $RCH_2X > R_3CX > R_2CHX$

8. $CH_3Br + Nu^- \rightarrow CH_3 - Nu + Br^-$ **. 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^-]

1) D > C > A > B 2) D > C > B > A 3) A > B > C > D 4) B > D > C > A

9. **Tertiary alkyl halides are practically inert to substitution by S_N2 mechanism because of**

1) Insolubility 2) instability 3) inductive effect 4) steric hindrance

10. **The decreasing order of reactivity of**

I) Benzyl chloride II) p-nitro benzyl chloride and

III) p-methaxy benzyl chloride towards S_N1 reaction is

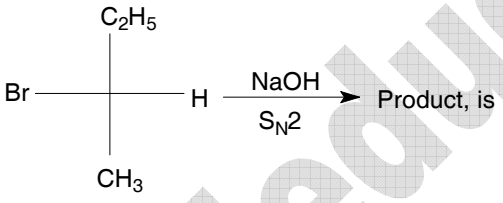
1) I > II > III 2) II > III > I 3) III > II > I 4) III > I > II

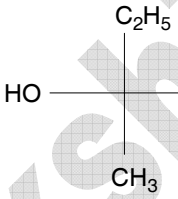
11. **The main organic product of the reaction of neopentyl bromide with aqueous NaOH is**

1) Neopentyl alcohol 2) Isobutyl alcohol

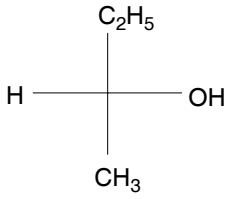
3) 3-Methylbutan-2-ol 4) 2-Methylbutan-2-ol

12. **The product in the reaction**





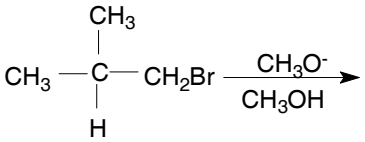
1)

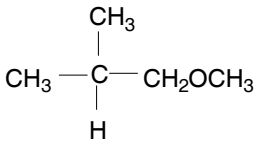


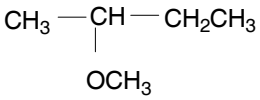
2)

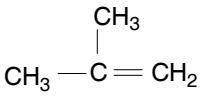
3) Both 4) None

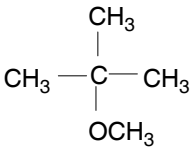
13. The major product formed in the following reaction is



1) 

2) 

3) 

4) 

14. Which of the following is the correct order of decreasing reactivity towards nucleophilic substitution?

1) Vinyl chloride > Allyl chloride > Propyl chloride

2) Propyl chloride > Vinyl chloride > Allyl chloride

3) Allyl chloride > Vinyl chloride > Propyl chloride

4) Allyl chloride > Propyl chloride > Vinyl chloride

15. Which of the following is an example of S_N2 reaction

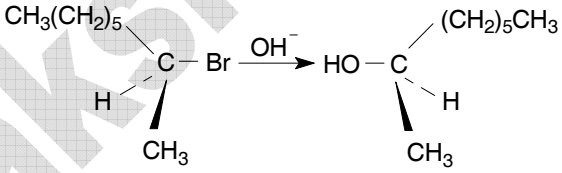
1) $CH_3Br + OH^- \rightarrow CH_3OH + Br^-$

2) $(CH_3)_2 CHBr + OH^- \rightarrow (CH_3)_2 CHOH + Br^-$

3) $CH_3CH_2OH \xrightarrow{-H_2O} CH_2 = CH_2$

4) $(CH_3)_3 C - Br + OH^- \rightarrow (CH_3)_3 COH + Br^-$

16. The reaction given below is :



1) S_E2 2) S_N1 3) S_N2 4) S_N0

17. Backside displacement is observed in all S_N2 reactions because

1) Nucleophiles are electronically attracted by the leaving group

2) Nucleophiles are electronically repelled by the leaving group

3) S_N2 reactions always takes place through two steps

4) attack on a carbocation intermediate is favoured on the opposite side from which the leaving group departs

18. S_N2 mechanism proceeds through the involvement of

1) Carbocation 2) transition state 3) free radical 4) carbocation

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

1) Ethyl chloride 2) isopropyl chloride 3) chlorobenzene 4) benzyl chloride

20. S_N2 reactions are

1) Stereo selective but not stereospecific 2) Stereo selective as well as stereospecific

3) Stereospecific but not Stereo selective 4) Neither Stereo selective nor stereospecific

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

1) RF > RCl > RBr > R1 2) RF > RBr > RCl > R1

3) RCl > RBr > RF > R1 4) R1 > RBr > RCl > RF

22. Which of the following nucleophiles favours S_N2 mechanism?

1) $:\bar{O}H$ 2) $H_2\ddot{O}$ 3) $\ddot{N}H_3$ 4) $:\bar{O}R$

23. Which of the following factors does not favour S_N1 mechanism?

1) Strong nucleophile 2) Polar solvent

3) Low concentration of nucleophile 4) 3° alkyl halide

24. Isopropyl chloride undergoes hydrolysis by

1) S_N1 mechanism 2) S_N2 mechanism

3) S_N1 and S_N2 mechanisms 4) E_1 mechanism

25. Consider the following haloalkanes

A) CH_3F B) CH_3Cl C) CH_3Br D) CH_3I

The increasing order of reactivity in nucleophilic substitution reaction is

1) A < B < D < C 2) A < B < C < D 3) A < C < B < D 4) D < C < B < A

KEY

1)1 2) 2 3) 4 4) 4 5) 4 6) 1 7) 1 8) 1 9) 4 10) 4

11) 4 12) 2 13) 4 14) 4 15) 1 16) 3 17) 2 18) 2 19) 4 20) 2

21) 4 22) 4 23) 1 24) 3 25) 2

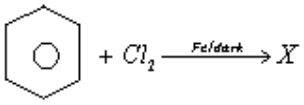
SUBTOPIC –III CHLORO BENZENE

1. Chlorobenzene is?

1) More reactive than ethyl bromide
2) More reactive than isopropyl chloride
3) As reactive as methyl chloride
4) Less reactive than benzyl chloride

2. Chlorobenzene is prepared commercially by

1) Dow's process
2) Deacon's process
3) Raschig's process
4) Etard's process

3.  **, 'X' is**

1) Dichloro benzene
2) benzyl chloride
3) 1, 3, 5 - trichloro benzene
4) Chlorobenzene

4. During chlorination of benzene using Cl_2 in the presence of $FeCl_3$ the attacking species is

1) Cl^- 2) Cl^+ 3) Cl_2 4) $FeCl_4^-$

5. Direct iodination of benzene is not possible because

1) Iodine is oxidizing agent
2) the product C_6H_5I is reduced to by C_6H_6 HI
3) HI is unstable
4) ring is deactivated

6. The following is an example of Sandmeyer reaction

1) $C_6H_5N_2^+Cl^- \xrightarrow{CuCl} C_6H_5Cl$
2) $C_6H_5N_2^+Cl^- \xrightarrow{H_2O/\Delta} C_6H_5OH$
3) $C_6H_5N_2^+Cl^- \xrightarrow{CuCN/KCN} C_6H_5CN$
4) $C_6H_5N_2^+Cl^- \xrightarrow{KI/warm} C_6H_5I$

7. Chlorobenzene on reaction with CH_3Cl in presence of $AlCl_3$ gives

1) toulene
2) m-chloro toulene
3) Only o-chloro toluene
4) mixture of o- and p-chlorotoulene

8. Aryl halides are less reactive towards nucleophili substitution reaction as compared to alkyl halides due to

1) The formation of less stable carbonium ion
2) Resonance stabilization
3) Longer – carbon – halogen bond
4) Both (1) and (2)

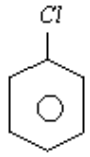
9. Chlorobenzene on nitration gives major product of

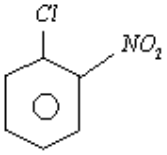
1) 1-chloro - 4 - nitro benzene
2) 1- chloro - 3 nitro benzene
3) 1, 4 - dinitro benzene
4) 2, 4, 6 - tri nitro benzene

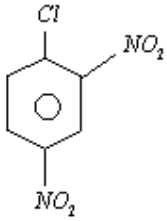
10. The reaction $C_6H_5I + 2Na + CH_3I \rightarrow C_6H_5CH_3 + 2NaI$ **is**

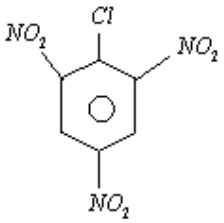
1) Wurtz reaction
2) Fittig reaction
3) Wurtz - Fittig reaction
4) Saandmeyer reaction

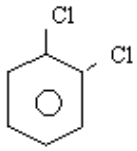
11. Which of the following compound undergoes replacement of C*l* by OH by merely warming with aq NaOH

1) 

2) 

3) 

4) 

12. IUPAC name of 

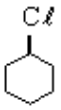
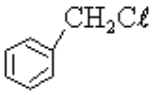
is

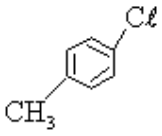
1) 1, 2 - dichloro benzene
2) m-dichloro benzene
3) 1, 6- dichloro benzene
4) o- dichloro benzene

13. Chlorobenzene on reaction with CH_3Cl in the presence of $AlCl_3$ will give

1) Toluene
2) m - Chloro toluene
3) p - Chloro toluene
4) A mixture of o - and p - chlorotoluene

14. Which of the following will be the least reactive towards nucleophilic substitution?

1) C_2H_5Cl 2)  3) 

4) 

15. Order of hydrolysis of the following compounds in increasing order

   $(CH_3)_3C$-Br

I II III IV

1) I < IV < II < III 2) IV < III < II < I 3) I < II < III < IV 4) I < II < IV < III

16. The reaction given below is known as

$C_6H_5I + 2Na + ICH_3 \rightarrow C_6H_5 - CH_3 + 2NaI$

1) Wurtz reaction 2) Fiting reaction

3) Wurtz - Fiting reaction 4) Ullmann reaction

17. The reaction of toluene with chlorine in the presence of ferric chloride gives mainly

1) m - chlorotoluene 2) Benzyl Chloride

3) o - and p - Chlorotoluene 4) Benzyl chloride

18. Chlorobenzene reacts with Mg in dry ether to give a compond (A) which further reacts with ethanol to yield

1) Ethylbenzene 2) Phenol 3) Phenylmethyl ether 4) Benzene

19. Non - Sticking frying pans are coated with Teflon which is polymer of

1) Ethylene 2) Styrene 3) Tetrafluoroethylene 4) Chloro fluoromethane

20. Which of the following compounds on oxidation gives benzoic acid ?

1) Chlorophenol 2) Chlorotoluene 3) Chlorobenzene 4) Benzyl Chloride

21. Chlorobenzene on heating with aqueous NH_3 under pressure in the presence of cuprous chloride gives

1) Benzamide 2) Nitrobenzene 3) Aniline 4) Chloroaminobenzene

KEY

1)4 2) 3 3) 4 4) 2 5) 2 6) 1 7) 4 8) 1 9) 1 10) 3

11) 4 12) 1 13) 4 14) 4 15) 3 16) 3 17) 3 18) 4 19) 3 20) 4

21) 3