GPLUS EDUCATION

Date :
Time : **CHEMISTRY**
Marks :

HALOALKANES AND HALOARENES

Single Correct Answer Type

1. Among the following the one that gives positive iodoform test upon reaction with I_2 and NaOH is
   a) $CH_3CH_2CH(OH)CH_2CH_3$
   b) $C_6H_5\ CH_2\ CH_2OH$
   c) $H_3C-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CH_2OH$
   d) $PhCHOHCH_3$
2. Vicinal and geminal dihalides can be distinguished by:
   a) $KOH(aq.)$ b) KOH(alc.) c) Zn dust d) None of these
3. An alkyl halide may be converted into an alcohol by:
   a) Addition b) Substitution c) Dehydrohalogenation d) Elimination
4. Dehydrohalogenation in haloalkanes produces:
   a) A single bond b) A double bond c) A triple bond d) Fragmentation
5. Chlorination of CS_2 gives:
   a) CCl_4 b) CS_2Cl_2 c) CH_4 d) $CHCl_3$
6. Methylene chloride on hydrolysis yields:
   a) HCHO b) CH_3CHO c) $CHCl_3$ d) CH_3COCl
7. The greater the ionic character of the carbon metal bond:
   a) The more reactive is the organometallic compound
   b) The less reactive is the organometallic compound
   c) Both are correct
   d) None of the above is correct
8. For the reaction,
   $C_2H_5OH + HX \xrightarrow{ZnX_2} C_2H_5X$, the order of reactivity is:
   a) $HI > HCl > HBr$ b) $HI > HBr > HCl$ c) $HCl > HBr > HI$ d) $HBr > HI > HCl$
9. The order of reactivities of methyl halides in the formation of Grignard reagent is
   a) $CH_3I > CH_3Br > CH_3Cl$ b) $CH_3Cl > CH_3Br > CH_3I$
   c) $CH_3Br > CH_3Cl > CH_3I$ d) $CH_3Br > CH_3I > CH_3Cl$
10. The antiseptic character of iodoform is due to:
    a) Its poisonous nature
    b) Unpleasant smell
    c) Liberation of free iodine
    d) None of the above
11. On treating a mixture of two alkyl halides with sodium metal in dry ether, 2-methyl propane was obtained. The alkyl halides are
    a) 2-chloropropane and chloromethane b) 2-chloropropane and chloroethane
    c) Chloromethane and chloroethane d) Chloromethane and 1-chloropropane
12. The IUPAC name of the compound, $(CH_3)_2CHCH_2CH_2Br$ is:
    a) 2-methyl-3-bromopropane
    b) 1-bromopentane

c) 2-methyl-4-bromobutane
d) 1-bromo-3-methylbutane

13. The given reaction is an example of,
$C_2H_5Br + KCN(aq.) \longrightarrow C_2H_5CN + KBr$:
a) Elimination
b) Nucleophilic substitution
c) Electrophilic substitution
d) Redox change

14. Which one of the following compound reacts with chlorobenzene to produce DDT?
a) Acetaldehyde
b) Nitrobenzene
c) *m*-chloroacetaldehyde
d) Trichloroacetaldehyde

15. Preparation of alkyl halides in laboratory is least preferred by:
a) Halide exchange
b) Direct halogenation of alkanes
c) Treatment of alcohols
d) Addition of hydrogen halides to alkenes

16. Which one of the following pairs is the strongest pesticide?
a) Chloroform and benzene hexachloride
b) DDT and 666
c) 666 and ether
d) isocyanides and alcohol

17. Iodoform gives a precipitate with $AgNO_3$ on heating but chloroform does not because:
a) Iodoform is ionic
b) Chloroform is covalent
c) C—I bond in iodoform is weak and C—Cl bond in chloroform is strong
d) None of the above

18. Which reagent is useful in increasing the carbon chain of an alkyl halide?
a) HCN
b) KCN
c) NH_4CN
d) AgCN

19. Chloroform on reaction with conc. HNO_3 gives an insecticide and war gas known as:
a) Chloropicrin
b) Nitromethane
c) Picric acid
d) Acetylene

20. Aryl halides are less reactive towards electrophiles than alkyl halides due to:
a) Resonance
b) Stability of carbonium ions
c) High boiling point
d) None of the above

21. Carbon tetrachloride reacts with steam at 500°C to give:
a) $COCl_2$
b) $CHCl_3$
c) Both (a) and (b)
d) None of these

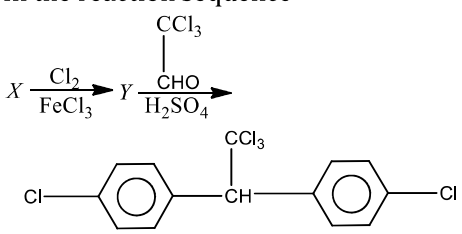
22. Chloroform on reaction with acetone yields:
a) Insecticide
b) Hypnotic agent
c) Analgesic
d) Isocyanide

23. In Wurtz reaction alkyl halide reacts with
a) Sodium in ether
b) Sodium in dry ether
c) Sodium only
d) Alkyl halide in ether

24. When iodoform is heated with silver powder it forms:
a) Acetylene
b) Ethylene
c) Methane
d) Ethane

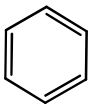
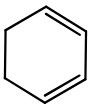
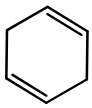
25. 1,3-dibromopropane reacts with metallic zinc to form:
a) Propene
b) Cyclopropane
c) Propane
d) Hexane

26. In the reaction sequence

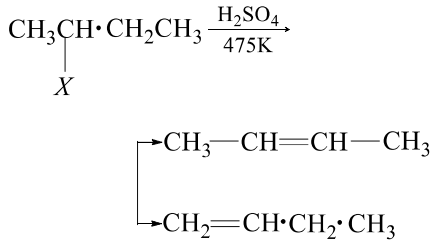


Compound 'X' is

a) Chlorobenzene b) Benzene c) Toluene d) Biphenyl methane

27. Which is used as a general anaesthetic in place of diethyl ether?
a) CF_3—$CHClBr$ b) CF_3—$CHCl_2$ c) CF_3—$CHBr_2$ d) None of these
28. Which of the following ketones will not respond to iodoform test?
a) Methyl isopropyl ketone b) Ethyl isopropyl ketone
c) Dimethyl ketone d) 2-hexanone
29. Propyl iodide and isopropyl iodide are:
a) Functional isomers b) Chain isomers c) Metamers d) Position isomers
30. $X + KCN \longrightarrow CH_3CN \xrightarrow{2H_2/Ni} CH_3CH_2NH_2$,
What is (X)?
a) CH_3CH_2Cl b) CH_3Cl c) $CH_3CH_2CH_2Cl$ d) $(CH_3)_2\ CHCl$
31. 2-chlorobutane obtained by chlorination of butane, will be:
a) *meso*-form b) Racemic form c) *d*-form d) *l*-form
32. Reaction of alkyl halides with aromatic compounds in presence of anhy. $AlCl_3$ is known as
a) Friedel-Craft's reaction b) Hofmann degradation
c) Kolbe's synthesis d) Beckmann rearrangement
33. Which of the following statements is incorrect regarding benzyl chloride?
a) It gives white precipitate with alcoholic $AgNO_3$
b) It is an aromatic compound with substitution in the side chain
c) It undergoes nucleophilic substitution reaction
d) It is less reactive than vinyl chloride
34. Which of the following compounds is not formed in iodoform reaction of acetone?
a) CH_3COCH_2I b) ICH_2COCH_2I c) CH_3COCHI_2 d) CH_3COCI_3
35. Of the isomeric hexanes, the isomers that give the minimum and maximum number of monochloro derivatives are respectively
a) 3-methylpentane and 2, 3-dimethylbutane b) 2, 3-dimethylbutane and *n*-hexane
c) 2, 2-dimethylbutane and 2-methylpentane d) 2, 3-dimethylbutane and 2-methypentane
36. 1, 2-dibromo cyclohexane on dehydrogenation gives
a)  b)  c)  d) None of these
37. Ethyl ortho formate is formed by heating ..... with sodium ethoxide.
a) $CHCl_3$ b) C_2H_5OH c) $HCOOH$ d) CH_3CHO
38. Chloroform is kept in dark coloured bottles because:
a) It is inflammable
b) It gives a peroxide
c) It undergoes rapid chlorination
d) It is oxidized to poisonous phosgene
39. Which of the following will not respond to iodoform test?
a) Ethyl alcohol b) Propanol-2 c) Propanol-1 d) Ethanal
40. At higher temperature, iodoform reaction is given by:
a) CH_3COOCH_3 b) $CH_3COOC_2H_5$ c) $C_6H_5COOCH_3$ d) $CH_3COOC_6H_5$
41. Molecular formula of chloropicrin is
a) $CHCl_3NO_2$ b) CCl_3NO_3 c) CCl_2NO_2 d) CCl_3NO_2
42. Which one of the following is not true for the hydrolysis of *t*-butyl bromide with aqueous NaOH?
a) Reaction occurs through the S_N1 mechanism.
b) The intermediate formed is a carbocation.
c) Rate of the reaction doubles when the concentration of alkali is doubled.
d) Rate of the reaction doubles when the concentration of *t*-butyl bromide is doubled.

43. $CHCl_3$ reacts with conc. HNO_3 to give
    a) CCl_3NO_2 b) CH_3NO_2 c) CH_3CN d) $CH_3CH_2NO_2$
44. The correct order of melting and boiling points of the primary (1°), secondary(2°) and tertiary (3°) alkyl halides is:
    a) $P > S > T$ b) $T > S > P$ c) $S > T > P$ d) $T > P > S$
45. Ethyl alcohol gives ethyl chloride on treatment with:
    a) NaCl b) $SOCl_2$ c) Cl_2 d) KCl
46. 20% aqueous solution of sodium chloride containing ethyl alcohol on electrolysis gives:
    a) Ethyl chloride b) Chloral c) Acetaldehyde d) Chloroform
47. Which of the following statements about benzyl chloride is incorrect?
    a) It is less reactive than alkyl halides
    b) It can be oxidised to benzaldehyde by boiling with copper nitrate solution
    c) It is a lachrymatory liquid and answers Beilstein's test
    d) It gives a white precipitate with alcoholic silver nitrate
48. The S_N1 reactivity of ethyl chloride is:
    a) More or less equal to that of benzyl chloride
    b) Less than that of benzyl chloride
    c) More or less equal to that of chlorobenzene
    d) Less than that of chlorobenzene
49. Which of the following will not give iodoform test?
    a) Isopropyl alcohol
    b) Ethanol
    c) Ethanal
    d) Benzyl alcohol
50. Elimination of HBr from 2-bromobutane results in the formation of:
    a) Equimolar mixture of 1- and 2- butene
    b) Predominantly 2-butene
    c) Predominantly 1- butene
    d) Predominantly 2-butyne
51. 1,2-dibromoethane is added to prevent deposition of lead metal in :
    a) Water pipes
    b) Petrol engines
    c) Electric heaters
    d) Metal working lathe machines
52. For the reaction,



    a) CH_3 —CH=CH— CH_3 predominates
    b) CH_2=CH—CH_2—CH_3 predominates
    c) Both are formed in equal amounts
    d) The product ratio is dependent on the halogen X
53. Grignard reagent is prepared by the reaction between:
    a) Zinc and alkyl halide
    b) Magnesium and alkyl halide
    c) Magnesium and alkane

d) Magnesium and aromatic hydrocarbon

54. In the following swquence of reactions

$$CH_3—Br \xrightarrow{KCN} A \xrightarrow{H_3O^+} B \xrightarrow[Ether]{LiAH_4} C$$

the end product (C) is:

a) Acetaldehyde b) Ethyl alcohol c) Acetone d) Methane

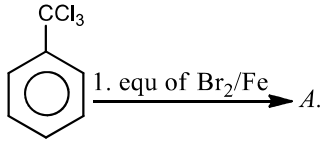
55. The IUPAC name of the compound,

$CH_3COCH(Cl)—CH(Br)COOH$ is:

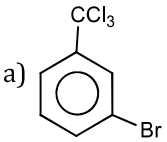
a) 2-bromo-3-chloro-4-oxopentanoic acid
b) 3-chloro-2-bromo-4-oxopentanoic acid
c) 4-carboxybromo-3-chloro-2-butanone
d) None of the above

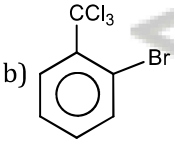
56. Which of the following is primary halide?

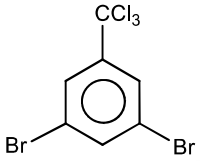
a) Isopropyl halide b) Sec-butyl halide c) Tert-butyl halide d) Neo-hexyl chloride

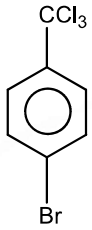
57. 

Compound A is

a) 

b) 

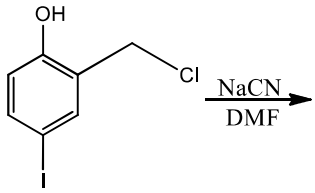
c) 

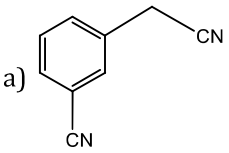
d) 

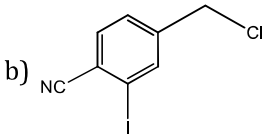
58. Which of the following do not form Grignard reagent?

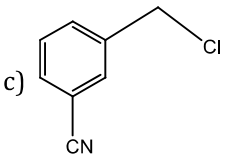
a) CH_3F b) CH_3Cl c) CH_3Br d) CH_3I

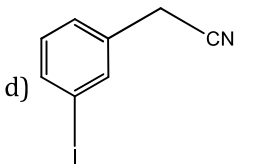
59. The structure of the major product formed in the following reaction is



a) 

b) 

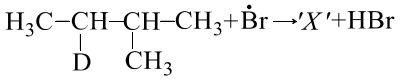
c) 

d) 

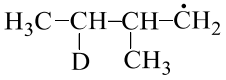
60. Butane nitrile may be prepared by heating:

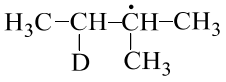
a) Propyl alcohol with KCN
b) Butyl alcohol with KCN
c) Butyl chloride with KCN
d) Propyl chloride with KCN

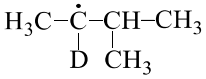
61. Consider the following reaction,

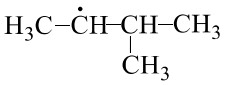


Identify the structure of the major product '*X*':

a) 

b) 

c) 

d) 

62. A mixture of 1-chloropropane and 2-chloropropane when treated with alcoholic KOH, it gives:
    a) 1-propene
    b) 2-propene
    c) Isopropylene
    d) A mixture of 1-propene and 2-propene
63. In Wurtz reaction of alkyl halides with sodium, the reactivity order of these halides is:
    a) $RI > RBr > RCl$ b) $RCl > RBr > RI$ c) $RBr > RI > RCl$ d) None of these
64. A mixture of sodium acetate and sodalime is heated and the product treated with excess of chlorine in presence of bright sunlight. The product is:
    a) CH_3COOH b) $CH_2BrCOOH$ c) CCl_4 d) CH_3Cl
65. 1-chlorobutane on reaction with alcoholic KOH gives:
    a) 1-butene b) 1-butanol c) 2-butene d) 2-butanol
66. Which halide does not get hydrolysed by sodium hydroxide?
    a) Vinyl chloride b) Methyl Chloride c) Ethyl chloride d) Isopropyl chloride
67. Iodoform test is not given by
    a) 2-pentanone b) Ethanol c) Ethanal d) 3-pentanone
68. The alkyl halides that can be made by free radical halogenation of alkanes are
    a) *R*Cl and *R*Br but not *R*F *or R*I b) *R*F, *R*Cl and *R*Br but not RI
    c) *R*F, *R*Cl, *R*Br, *R*I d) *R*F, *R*CI *and R*I but not *R*Br
69. Non-sticking frying pans are coated with:
    a) Ethylene
    b) Styrene
    c) Tetrafluoroethylene (Teflon)
    d) Chlorofluoro methane
70. Ethyl chloride on heating with AgCN forms a compound *X*. The functional isomer of X is
    a) C_2H_5NC b) $C_2H_5NH_2$ c) C_2H_5CN d) None of these
71. Chlorine is most reactive towards NaOH in:
    a) CH_3Cl b) $CH_2{=}CHCl$ c) C_6H_5Cl d) $C_6H_5CH_2Cl$
72. The chemical formula of 'tear gas' is
    a) $COCl_2$ b) CO_2 c) Cl_2 d) CCl_3NO_2
73. The order of polarity of CH_3I, CH_3Br and CH_3Cl molecules follows the order:
    a) $CH_3Br > CH_3Cl > CH_3I$
    b) $CH_3I > CH_3Br > CH_3Cl$
    c) $CH_3Cl > CH_3Br > CH_3I$
    d) $CH_3Cl > CH_3I > CH_3Br$
74. Chloroform gives a trichloro derivative of an alcohol on reaction with
    a) conc. nitric acid b) aq. alkali

c) acetone and alkali d) a primary amine and an alkali

75. In order to convert aniline into chlorobenzene the reagent used is
a) $NaNO_2/HCl, CuCl$ b) Cl_2/CCl_4 c) $Cl_2/AlCl_3$ d) $CuCl_2$

76. Number of monochloro derivatives obtained when *neo* −pentane is chlorinated, is
a) One b) Two c) Three d) Four

77. Which of the following will not form a yellow precipitate on heating with an alkaline solution of iodine?
a) $CH_3\ CH(OH)CH_3$ b) $CH_3\ CH_2CH(OH)CH_3$ c) CH_3OH d) $CH_3\ CH_2OH$

78. $CaOCl_2 + H_2O \rightarrow Ca(OH)_2 + X$
$X + CH_3CHO \rightarrow Y$
$Y + Ca(OH)_2 \rightarrow CHCl_3$.
What is 'Y'?
a) $CH_3CH(OH)_2$ b) CH_2Cl_2 c) CCl_3CHO d) CCl_3COCH_3

79. Reaction of *trans*-2-phenyl-1-bromocyclopentane on reaction with alcoholic KOH produces
a) 4-phenylcyclopentene b) 2-phenylcyclopentene
c) 1-phenylcyclopentene d) 3-phenylcyclopentene

80. In order to get ethanethiol from C_2H_5Br, the reagent used is:
a) Na_2S b) NaHS c) KCNS d) K_2S

81. Solvent used in dry-cleaning of clothes is:
a) Alcohol b) Acetone c) Carbon tetrachloride d) freon

82. Correct order of reactivity for halides is:
a) Vinyl chloride > allyl chloride > propyl chloride
b) Propyl chloride > vinyl chloride > allyl chloride
c) Allyl chloride > propyl chloride > vinyl chloride
d) None of the above

83. The substance employed as tear gas is:
a) Westron b) Chloropicrin c) Chloretone d) None of these

84. One of the following that cannot undergo dehydrohalogenation is
a) *iso*-propyl bromide b) ethanol c) Ethyl bromide d) None of the above

85. The starting material for the preparation of CHI_3 is:
a) C_2H_5OH b) CH_3OH c) C_2H_5CHO d) HCHO

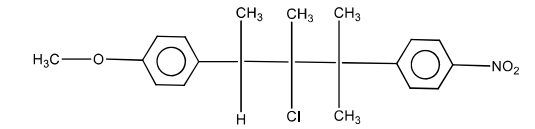
86. Optically active compound is:
a) 2-chloropropane b) 2-chlorobutane c) 3-chloropentane d) None of these

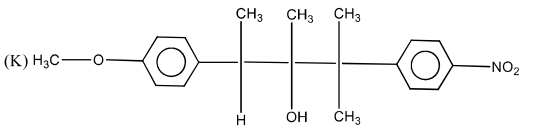
87. CCl_4 is insoluble in water because:
a) Water is non-polar
b) CCl_4 is non-polar
c) Water and CCl_4 are polar
d) None of the above

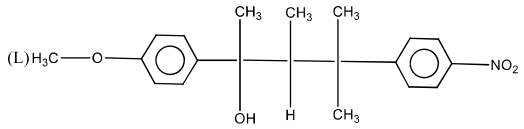
88. Which one is most reactive towards S_N1 reactions?
a) $C_6H_5CH(C_6H_5)Br$ b) $C_6H_5CH(CH_3)Br$ c) $C_6H_5C(CH_3)(C_6H_5)Br$ d) $C_6H_5CH_2Br$

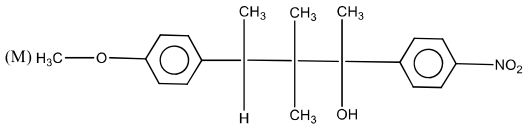
89. Which of the following applies in the reaction,
$CH_3CHBrCH_2CH_3 \xrightarrow{\text{Alc.KOH}}$
(i)$CH_3CH = CHCH_3$ (major product)
(ii) $CH_2 = CHCH_2CH_3$ (minor product)
a) Markownikoff's rule b) Saytzeff's rule c) Kharasch effect d) Hofmann's rule

90. The following compound on hydrolysis in aqueous acetone will give









a) Mixture of (K) and (L)
b) Mixture of (K) and (M)
c) Only (M)
d) Only (K)

91. The metal used for the de-bromination reaction of 1, 2-dibromoethane.
a) Na b) Zn c) Mg d) Li

92. Reaction of t-butyl bromide with sodium methoxide produces
a) Isobutane
b) Isobutylene
c) Sodium t-butoxide
d) t-butylmethyl ether

93. $CH_3Br + KCN(alc.) \rightarrow X \xrightarrow[Na+C_2H_5OH]{Reduction} Y$

What is Y in the series?
a) CH_3CN b) C_2H_5CN c) $C_2H_5NH_2$ d) CH_3NH_2

94. If methyl iodide and ethyl iodide are mixed in equal proportions, and the mixture is treated with metallic sodium in presence of dry ether, the number of possible products formed is:
a) 2 b) 3 c) 1 d) 4

95. An alkyl iodide on standing darkens, due to:
a) Hydrolysis
b) Conversion into ether
c) Liberation of iodine
d) Formation of alkanes

96. X compound reacts with Na to give $CH_3\ CH_2\ CH_2\ CH_3$, then compound X is
a) $CH_3\ CH_2OH$
b) $CH_3\ CH_2 - Cl$
c) $CH_3 - CH_3$
d) $CH_3CH_2CH_2CH_2\ OH$

97. Maximum number of molecules of CH_3I that can react with a molecule of CH_3NH_2 are
a) 3 b) 4 c) 2 d) 1

98. The CCl_4 and $CHCl_3$ can be distinguished by the action of:
a) RNH_2 + KOH alc. b) RCN + KOH alc. c) Hydrolysis d) Burning in air

99. Alkyl halides reacts with dialkyl lithium cuprate to give:
    a) Alkenes b) Alkyl Cu halide c) Alkanes d) Alkenyl halide
100. Which responds to the iodoform test?
    a) Butanol b) Butan-1-al c) Butanone-2 d) 3-pentanone
101. In the reaction sequence,
    $C_2H_5Cl + KCN \xrightarrow{C_2H_5OH} X \xrightarrow[\triangle]{H_3O^{\oplus}} Y$
    What is the molecular formula of Y?
    a) $C_3H_6O_2$ b) C_3H_5N c) $C_2H_4O_2$ d) C_2H_6O
102. Which one of the following forms propane nitrile as the major product?
    a) Ethyl bromide + alcoholic KCN b) Propyl bromide + alcoholic KCN
    c) Propyl bromide + alcoholic AgCN d) Ethyl bromide + alcoholic AgCN
103. The compound A forms B with sodium metal and again A forms C with PCl_5, but B and C form diethyl ether. Therefore A, B and C are:
    a) $C_2H_5OH, C_2H_5ONa, C_2H_5$ b) $C_2H_5OH, C_2H_5Cl, C_2H_5O$ c) $C_2H_5OH, C_2H_5Cl, C_2H_4Cl$ d) $C_2H_5OH, C_2H_5Cl, C_2H_5O$
104. For the carbylamine reaction we need hot alcoholic KOH and:
    a) Any amine and chloroform
    b) Chloroform and silver powder
    c) A primary amine and an alkyl halide
    d) Any monoalkyl amine and trichloro methane
105. Ethyl bromide reacts with lead-sodium alloy to form:
    a) Tetraethyl lead b) Tetraethyl bromide c) Both (a) and (b) d) None of these
106. The number of possible enantiomeric pairs that can be produced during mono-chlorination of 2-methyl butane is
    a) 3 b) 4 c) 1 d) 2
107. Alkyl halides on treatment with a suspension of Ag_2O moist in ether gives:
    a) Alkanol b) Alkanal c) Alkanes d) Alkoxy alkane
108. The conversion of ethyl chloride into diethyl ether takes place by
    a) Williamson's synthesis b) Perkin's reaction
    c) Wurtz reaction d) Grignard reaction
109. Which process does not occur during formation of $CHCl_3$ from C_2H_5OH and bleaching powder?
    a) Hydrolysis b) Oxidation c) Elimination d) Chlorination
110. Which of the following does not answer iodoform test?
    a) n-butyl alcohol b) Acetophenone c) Acetaldehyde d) Ethylmethyl ketone
111. Methyl bromide is not used:
    a) As an insecticide
    b) As disinfectant
    c) For dyeing clothes
    d) As disinfectant for young fruit trees
112. Which compound on reaction with ethyl magnesium bromide and water will form 2-methyl-2-butanol?
    a) CH_3COCH_3 b) CH_3COOCH_3 c) CH_3CH_2CHO d) $C_2H_5COCH_3$
113. Alkyl halides are less soluble in water because
    a) they ionise in water b) they do not form H-bonds with water
    c) they are highly viscous d) they have very strong C – X bond
114. Hexachloroethane is also called
    a) Artificial sweetner b) Artificial camphor c) Artificial polymer d) None of these
115. Isobutyl magnesium bromide with dry ether and absolute alcohol gives:
    a) $CH_3 \cdot CH(CH_3) \cdot CH_2OH$ and $CH_3 \cdot CH_2MgBr$

b) $CH_3{\cdot}CH(CH_3){\cdot}CH_2{\cdot}CH_2{\cdot}CH_3$ and Mg(OH)Br

c) $CH_3-CH(CH_3)-CH_3, CH_2=CH_2$ and Mg(OH)Br

d) $CH_3-CH(CH_3)-CH_3$ and CH_3CH_2OMgBr

116. Strong reducing agent converts $CHCl_3$ into:
a) C_2H_2 b) C_2H_6 c) C_2H_4 d) CH_4

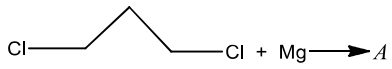
117. Which of the following are arranged in decreasing order of dipole moment:
a) CH_3Cl, CH_3Br, CH_3F b) CH_3Cl, CH_3F, CH_3Br c) CH_3Br, CH_3Cl, CH_3F d) CH_3Br, CH_3F, CH_3Cl

118. Fluorobenzene (C_6H_5F) can be synthesised in the laboratory
a) By heating phenol with HF and KF
b) From aniline by diazotisation followed by heating the diazonium salt with HBF_4
c) By direct fluorination of benzene with F_2 gas
d) By reacting bromobenzene with NaF solution

119. 1-chlorobutane on reaction with alcoholic potash gives
a) but-1-ene b) butan-1-ol c) but-2-ene d) butan-2-ol

120. On warming with silver powder, chloroform is converted into
a) Acetylene b) Hexachloroethane
c) 1, 1, 2, 2-tetrachloroethane d) Ethylene

121. What is the product *A* in the following?



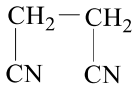
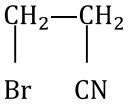
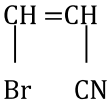
a) 

b) 

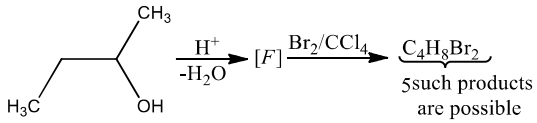
c) Both (a) and (b) d) None of the above

122. Identify (Z) in the following reaction series,

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

a) CH_3-CH_2-CN b)  c)  d) 

123. How many structures of *F* is possible?



a) 2 b) 5 c) 6 d) 3

124. PVC plastics are produced by the polymerization of:
a) Vinyl acetate b) Allyl chloride c) Vinyl chloride d) Ethene

125. Ethylene dichloride can be prepared by the reaction of HCl and :
a) Ethane b) Ethylene c) Acetylene d) Ethylene glycol

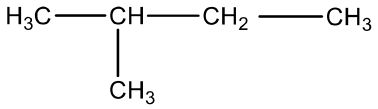
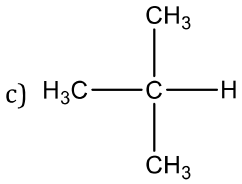
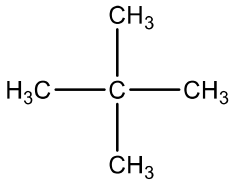
126. Polymer of chloroethylene is:
a) PVC b) Teflon c) Nylon d) Terylene

127. Most readily hydrolysed halides is:
a) C_6H_5Cl b) $(C_6H_5)_2CHCl$ c) $C_6H_5CH_2Cl$ d) $(C_6H_5)_3CCl$

128. What is the product of the reaction of 1, 3-butadiene with Br_2?
a) 1, 4-dibromo butene b) 1, 2- dibromo butene

c) 3, 4- dibromo butene
d) 2, 3- dibromo-2-butene

129. Chlorobenzene gives aniline with
a) NH_3/Cu_20 b) NH_3/H_2SO_4 c) $NaNH_2$ d) None of the above

130. In the following compound, least number of monochlorination is possible
a) $CH_3CH_2CH_2CH_2CH_3$
b) 
c) 
d) 

131. 2, 2-dichloro propane on hydrolysis yields
a) Acetone
b) 2, 2-propane diol
c) Isopropyl alcohol
d) Acetaldehyde

132. The product of vinyl chloride and HCl is a
a) *gem* chloride
b) Ethylidene chloride
c) 1, 1 dichloroethane
d) All of the above are correct

133. Among the following, the molecule with the highest dipole moment is:
a) CH_3Cl b) CH_2Cl_2 c) $CHCl_3$ d) CCl_4

134. CO_2 on reaction with C_2H_5MgBr and H_2O gives:
a) Ethane b) Propionic acid c) Acetic acid d) None of these

135. Methyl chloride reacts with silver acetate to yield:
a) Acetic acid b) Methyl acetate c) Acetyl chloride d) Acetaldehyde

136. A compound *A* of formula $C_3H_6Cl_2$ on reaction with alkali can give *B* of formula C_3H_6O or *C* of formula C_3H_4. *B* on oxidation gave a compound of the formula $C_3H_6O_2$. *C* with dilute H_2SO_4 containing Hg^{2+} ion gave *D* of formula C_3H_6O, which with bromine and NaOH gave the sodium salt of $C_2H_4O_2$. Then *A* is:
a) $CH_3CH_2CHCl_2$
b) $CH_3CCl_2CH_3$
c) $CH_2ClCH_2CH_2Cl$
d) $CH_3CHClCH_2Cl$

137. Compounds formed, when methyl amine is heated with chloroform in the presence of KOH is:
a) $CH_3—C\equiv N$ b) $CH_3N^+\equiv C^-$ c) $CH_3—N^-\equiv C^+$ d) CH_3NHCH_3

138. Tertiary butyl alcohol gives tertiary butyl chloride on treatment with
a) Conc. HCl/anhy. $ZnCl_2$ b) KCN c) NaOCl d) Cl_2

139. The reaction of toluene with Cl_2 in presence of $FeCl_3$ gives predominantly
a) Benzoyl chloride
b) Benzyl chloride
c) *o*-and *p*-chlorotoluene
d) *m*-chlorotoluene

140. Which one of the following compounds when heated with KOH and a primary amine gives carbylamine test?
a) $CHCl_3$ b) CH_3Cl c) CH_3OH d) CH_3CN

141. In the following reaction:
$C_6H_5CH_2Br \xrightarrow[2.H_3O^+]{1.\ Mg/ether} X$; the product '*X*' is :
a) $C_6H_5CH_2OCH_2C_6H_5$ b) $C_6H_5CH_2OH$ c) $C_6H_5CH_3$ d) $C_6H_5CH_2CH_2C_6H_5$

142. For a given alkyl group, the densities/b. p./m. p. are in the order:
a) $RI < RBr < RCl$ b) $RI < RCl < RBr$ c) $RBr < RI < RCl$ d) $RCl < RBr < RI$

143. Carbylamine test is performed by heating alc. KOH with:
a) $CHCl_3$ and Ag

b) Trihalogenated methane and primary amine
c) CH_3Cl and $C_2H_5NH_2$
d) RCN and RNH_2

144. Which of these compounds is synthesised by chloral?
a) DDT b) BHC c) Chloroform d) Michlers ketones

145. Iodoform can be prepared from all except:
a) Isopropyl alcohol b) 3-methyl -2-butanone c) Isobutyl alcohol d) Ethyl methyl ketone

146. When vinyl chloride is passed through alcoholic KOH solution:
a) It dissolves b) It forms vinyl alcohol c) It forms acetylene d) It has no action

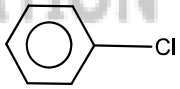
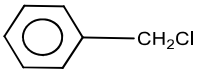
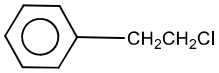
147. Following compounds are given:
(i) CH_3CH_2OH (ii) CH_3COCH_3
(iii) $CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle |}{CH}}\,OH$ (iv) CH_3OH

Which of the above compound(s), on being warmed with iodine solution and NaOH, will give iodoform?
a) (i),(iii) and (iv) b) Only (ii) c) (i), (ii) and (iii) d) (i) and (ii)

148. DDT is obtained by the reaction of chlorobenzene with
a) Chloral b) Chloroform c) Dichloromethane d) Acetaldehyde

149. The reaction products of the reaction between $C_6H_5NH_2$, $CHCl_3$ and KOH are:
a) $C_6H_5NC + KCl$
b) $C_6H_5OH + NH_4Cl + H_2O$
c) $C_6H_5Cl + NH_4Cl + KCl$
d) $C_6H_5CN + KCl$

150. In the reaction,
$CH_3C \equiv \bar{C}\ Na^+ + (CH_3)_2CHCl \longrightarrow$
the product formed is:
a) 4-methyl-2-pentyne b) Propyne c) Propyne and propene d) None of these

151. Which one of the following chlorohydrocarbons readily undergoes solvolysis?
a) $CH_2 = CHCl$ b) 
c)  d) 

152. Grignard reagent with hydrogen cyanide gives:
a) Aldehyde b) Ketone c) Both (a) and (b) d) None of these

153. What happens if CCl_4 is treated with $AgNO_3$?
a) A white ppt. of AgCl will form b) NO_2 will be evolved
c) CCl_4 will dissolve in $AgNO_3$ d) Nothing will happen

154. Among the following which one has weakest carbon-halogen bond?
a) Benzyl bromide b) Bromobenzene c) Vinyl bromide d) Benzyl chloride

155. Of the five isomeric hexanes, the isomer which can give two monochlorinated compounds is
a) 2-methylpentane b) 2,2-dimethylbutane c) 2, 3-dimethylbutane d) *n*-hexane

156. Which of the following compounds gives trichloromethane on distilling with bleaching powder?
a) Methanal b) Phenol c) Ethanol d) Methanol

157. Sodium ethoxide reacts with ethyl iodide to yield:
a) CH_3CH_3 b) $C_2H_5OCH_3$ c) $C_2H_5OC_2H_5$ d) None of these

158. $CH_3Br + KCN\ (alc.) \rightarrow X \xrightarrow[Na/C_2H_5OH]{\text{Reduction}} Y$, what is Y in the series?
a) CH_3CN b) C_2H_5CN c) $C_2H_5NH_2$ d) CH_3NH_2

159. Identify A and B in the following reactions

$A \xrightarrow[\Delta]{\text{Aq.NaOH}} C_2H_5OH \xleftarrow{AgOH} B$

a) $A = C_2H_2, B = C_2H_6$ b) $A = C_2H_5Cl, B = C_2H_4$

c) $A = C_2H_4, B = C_2H_5Cl$ d) $A = C_2H_5Cl, B = C_2H_5Cl$

160. The reagent used in the conversion of 1-butanol to 1-bromobutane is:

a) $CHBr_3$ b) Br_2 c) CH_3Br d) $P + Br_2$

161. *t*-butyl chloride preferably undergo hydrolysis by

a) S_N1 mechanism

b) S_N2 mechanism

c) Any of (a) and (b)

d) None of the above

162. Which statement is wrong about chloroform?

a) Chloroform is used as anaesthetic

b) Chloroform has distorted tetrahedral shape

c) Chloroform is used as a solvent

d) Chloroform has sp^2-hybridised carbon atom

163. When CCl_4 is boiled with KOH, the product formed is:

a) Formic acid b) Methyl alcohol c) Formaldehyde d) Carbon dioxide

164. Which set of reagents will produce freon(CCl_2F_2) ?

a) $C + F_2 + Cl_2 \longrightarrow$ b) $CH_3Cl + F_2 \longrightarrow$ c) $CCl_4 + HF \xrightarrow{SbCl_5}$ d) $CCl_4 + F_2 \longrightarrow$

165. Which of the following will not give positive iodoform test?

a) $CH_3CH_2CHOHCH_3$ b) $CH_3CH_2CH_2COCH_3$ c) $CH_3CH_2COCH_2CH_3$ d) $CH_3COC_6H_5$

166. Which of the following does not react with benzene in presence of anhydrous $AlCl_3$?

a) C_6H_5Cl b) $C_6H_5CH_2Cl$ c) CH_3Cl d) $C_6H_5CH_2CH_2CH_2Cl$

167. Iodoform is obtained when ethanol is heatd with

a) KI and aq. KOH b) I_2 and aq. KOH c) I_2/aq. KI d) HI and HIO_3

168. *n*-propyl bromide reacts with ethanolic KOH to form:

a) Propane b) Propene c) Propyne d) Propyl alcohol

169. Which of the following statements regarding the S_N1 reaction shown by alkyl halide is not correct?

a) The added nucleophile plays no kinetic role in S_N1 reaction.

b) The S_N1 reaction involves the inversion of configuration of the optically active substrate.

c) The S_N1 reaction on the chiral starting material ends up with racemization of the product.

d) The more stable the carbocation intermediate the faster the S_N1 reaction.

170. Pick up the correct statement about alkyl halides:

a) They show H-bonding.

b) They are soluble in water.

c) They are soluble in organic solvents.

d) They do not contain any polar bond.

171. The product of reaction between alcoholic silver nitrite with ethyl bromide is

a) Ethene b) Ethane c) Ethyl nitrile d) Nitro ethane

172. 1-phenyl, 2-chloropropane on treating with alc. KOH gives mainly:

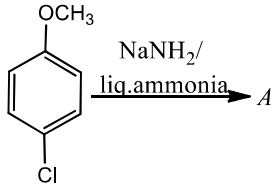
a) 1-phenylpropene

b) 2-phenylpropene

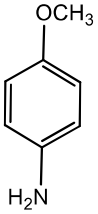
c) 1-phenylpropan-2-ol

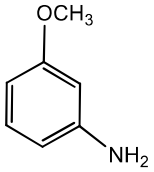
d) 1-phenylpropan-1-ol

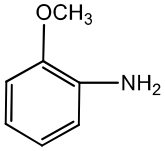
173. In the reaction,

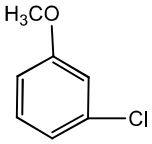


The major product *A* is

a) 

b) 

c) 

d) 

174. $(CH_3)_3CMgCl$ on reaction with D_2O gives:
a) $(CH_3)_3CD$ b) $(CH_3)_3OD$ c) $(CD_3)_3CD$ d) $(CD_3)_3OD$

175. Grignard reagent shows addition on:
a) $>C=O$ b) $-C\equiv N$ c) $>C=S$ d) All of these

176. When tetrahydrafuran is treated with excess HI, the product formed is
a) 1, 4-diiodobutane
b) 1, 4-butanediol
c) 2-iodotetrahydrofuran
d) 4-iodo-1-butanol

177. Lodoform can be used in medicine as:
a) Anaesthetic b) Antiseptic c) Analgesic d) Antifebrin

178. A mixture of two organic compounds was treated with sodium metal in ether solution. Isobutane was obtained as a product. The two chlorine compounds are:
a) Methyl chloride and propyl chloride
b) Methyl chloride and ethyl chloride
c) Isopropyl chloride and methyl chloride
d) Isopropyl chloride and ethyl chloride

179. Wurtz's reaction involves the reduction of alkyl halide with
a) Zn/HCl b) HI c) Zn/Cu couple d) Na in ether

180. In the following sequences of reactions;
$CH_3CH_2CH_2Br \xrightarrow{KOH(alc.)} (A) \xrightarrow{HBr}$
$(B) \xrightarrow{KOH(aq.)} (C)$ the end product (C) is :
a) Propene
b) Propyne
c) Propan-l-ol
d) Propan-2-ol

181. When $CHCl_3$ is boiled with NaOH, it gives
a) Formic acid
b) Trihydroxy methane
c) Acetylene
d) Sodium formate

182. Which of the following compounds has the highest boiling point ?
a) $CH_3\ CH_2CH_2Cl$
b) $CH_3CH_2CH_2CH_2Cl$
c) $CH_3CH(CH_3)CH_2Cl$
d) $(CH_3)_3\ CCl$

183. Which one is liquid at room temperature?
a) CH_3Cl b) C_2H_5Cl c) CH_3Br d) C_2H_5Br

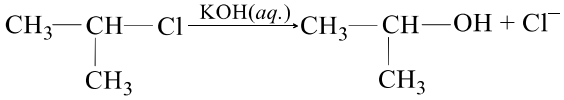
184. The organic chloro compound, which shows complete stereochemical inversion during an S_N2 reaction is
a) $(C_2H_5)_2\ CHCl$ b) $(CH_3)_3CCl$ c) $(CH_3)_2\ CHCl$ d) CH_3Cl

185. The best method for the conversion of an alcohol into an alkyl chloride is by treating the alcohol with
a) PCl_3
b) PCl_5
c) $SOCl_2$in presence of pyridine
d) dry HCl in the presence of anhydrous $ZnCl_2$

186. Which compound is used in cooling?
a) $CHCl_3$ b) CCl_4 c) CF_4 d) CCl_2F_2

187. Which is finally produced when acetylene reacts with HCl?
a) $CH_2{=}CHCl$ b) CH_3CHCl_2 c) $ClCH{=}CHCl$ d) None of these

188. The reaction,



shows:
a) Reduction
b) Oxidation
c) Neutralisation
d) Nucleophilic substitution

189. Which of the following alkyl halide is used as methylating agent?
a) C_2H_5Cl b) C_2H_5Br c) C_2H_5I d) CH_3I

190. The products of reaction of alcoholic silver nitrite with ethyl bromide are:
a) Ethane b) Ethene c) Ethyl alcohol d) Nitroethane

191. Which is most reactive for S_N2 reactions?
a) CH_3I b) C_2H_5I c) C_3H_7I d) C_4H_9I

192. The product obtained on treatment of ethyl chloride with potassium cyanide is reduced by sodium and alcohol to give:
a) Propyl amine b) Ethyl amine c) Diethyl amine d) Acetic acid

193. The molecular formula of the chlorinated acetone formed in the distillation of acetone with bleaching powder is:
a) CH_3COCl b) CCl_2OCl_3 c) $CH_2ClCOOH$ d) CCl_3COCH_3

194. Compound 'A' reacts with alcoholic KOH to yield compound 'B' which on ozonolysis followed by reaction with Zn/H_2O gives methanal and propanal. Compound 'A' is
a) 1-propanol b) 1-butanol c) 1-chlorobutane d) 1-chloropentane

195. Phenol is heated with $CHCl_3$ and alcoholic KOH when salicylaldehyde is produced. The reaction is known as:
a) Rosenmund's reaction
b) Reimer-Tiemann reaction
c) Friedel-Craft's reaction
d) Sommelet reaction

196. Which of the following can be used as local anaesthetic?
a) $CHCl_3$ b) C_2H_4 with O_2 c) C_2H_5Cl d) C_2H_5OH

197. Which of the following is not inflammable?
a) $CHCl_3$ b) Benzene
c) Toluene d) Carbon tetrachloride

198. Which of the following does not answer iodoform test?
a) *N*-butyl alcohol b) *Sec*-butyl alcohol c) Acetophenone d) Acetaldehyde

199. Grignard reagent is not prepared in aqueous medium but prepared in either medium, because
a) the reagent is highly reactive in ether b) the reagent does not react with water
c) the reagent becomes inactive in water d) the reagent reacts with water

200. The reaction in which phenol differs from alcohol is
a) It undergoes esterification with carboxylic acid b) It reacts with ammonia
c) It forms yellow crystals of iodoform d) It liberates H_2 with Na metal

201. Which compound is used as helminthicide for elimination of hook worms?
a) CH_4 b) $CHCl_3$ c) $C_2H_2Cl_4$ d) CCl_4

202. In the preparation of chlorobenzene from aniline, the most suitable reagent is

a) Chlorine in the presence of ultraviolet light b) Chlorine in the presence of $AlCl_3$
c) Nitrous acid followed by heating with Cu_2Cl_2 d) HCl and Cu_2Cl_2

203. Methyl magnesium iodide on treatment with D_2O furnishes a hydrocarbon, alongwith Mg(OD)I. The hydrocarbon is:
a) CH_3D b) CH_3CH_2D c) CH_4 d) None of these

204. A Grignard reagent is prepared by reacting magnesium with:
a) Methyl amine b) Diethyl ether c) Ethyl iodide d) Ethyl alcohol

205. Identify *A* and *B* in the following reaction
$C_2H_5Cl \xrightarrow{A} C_2H_5OH \xleftarrow{B} C_2H_5Cl$
a) *A*= aqueous KOH; *B*= AgOH b) *A*= alcoholic KOH/ Δ; *B*=aqueous NaOH
c) *A*= aqueous NaOH; *B*= $AgNO_2$ d) $A = AgNO_2$; $B = KNO_2$

206. A yellow precipitate is obtained when aqueous $AgNO_3$ is added to a solution of the compound:
a) CCl_3CHO b) CHI_3 c) $CHCl_3$ d) $C_6H_5CH_2Cl$

207. Which statement is correct?
a) C_2H_5Br reacts with alcoholic KOH to form C_2H_5OH
b) C_2H_5Br when treated with metallic sodium gives ethane
c) C_2H_5Br when treated with sodium ethoxide forms diethyl ether
d) C_2H_5Br with AgCN forms ethyl cyanide

208. Phosgene is a common name for:
a) CO_2 and PH_3 b) Phosphoryl chloride c) Carbonyl chloride d) Carbon tetrachloride

209. The alkyl halide which does not give white precipitate with alcoholic $AgNO_3$ solution is:
a) Ethyl chloride b) Allyl chloride c) Isopropyl chloride d) Vinyl chloride

210. An alkyl halide reacts with equivalent amount of NH_3 to give:
a) Amide b) Cyanide c) Amine d) None of these

211. The combination which produces *t*-butyl alcohol when treated with Grignard reagent:
a) $CH_3MgBr + CH_3COCH_3$
b) $C_2H_5MgBr + CH_3COCH_3$
c) $CH_3MgBr + (CH_3)_2CHOH$
d) $CH_3MgBr + (CH_3)_3COH$

212. Methyl chloride on treatment with potassium cyanide followed by hydrolysis yields:
a) HCOOH b) CH_3COOH c) CH_3CN d) CH_3COOK

213. 9.65 C of electric current is passed through fused anhydrous magnesium chloride. The magnesium metal thus, obtained is completely converted into a Grignard reagent. The number of moles of the Grignard reagent obtained is
a) 5×10^{-4} b) 1×10^{-4} c) 5×10^{-5} d) 1×10^{-5}

214. A bromoalkane 'X' reacts with magnesium in dry ether to form compound 'Y'. The reaction of 'Y' with methanal followed by hydrolysis yield an alcohol having molecular formula $C_4H_{10}O$. The compound 'X' is
a) Bromoethane b) Bromomethane c) 1-bromopropane d) 2-bromopropane

215. $C_2H_5Br \xrightarrow{KCN} (A) \xrightarrow{Hydrolysis} (B)$
The compound (B) in above reaction is:
a) Ethylene chloride b) Acetic acid c) Propionic acid d) Ethyl cyanide

216. A salt solution is treated with chloroform drops and is shaken with chlorine water. Chloroform layer becomes violet, solution contains:
a) NO_2^- b) NO_3^- c) Br^- d) I^-

217. Which of the following is least reactive in a nucleophilic substitution reaction?
a) $(CH_3)_3CCl$ b) $CH_2{=}CHCl$ c) CH_3CH_2Cl d) $CH_2{=}CHCH_2Cl$

218. Ethylidine dichloride (CH_3CHCl_2) can be prepared by the addition of hydrogen chloride on:
a) C_2H_6 b) C_2H_4 c) C_2H_2 d) All of these

219. Which of the following statements is true?

a) Allyl chloride is more reactive than vinyl chloride
b) Vinyl chloride is as reactive as allyl chloride
c) Vinyl chloride is more reactive than allyl chloride
d) Both of them are more reactive than chlorobenzene

220. An alkyl halide (RX) reacts with Na to from 4, 5-diethyloctane. Compound RX is
a) $CH_3\ (CH_2)_3\ Br$ b) $CH_3\ (CH_2)_2\ CH(Br)CH_2CH_3$
c) $CH_3\ (CH_2)_3\ CH(Br)CH_3$ d) $CH_3(CH_2)_5\ Br$

221. PCl_5 reacts with propanone, to give:
a) Gem dichloride b) Vic dichloride c) Propanal d) Propane chloride

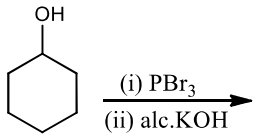
222. Which is not present in Grignard reagent?
a) Carboxylic radical represented by COOH
b) Magnesium represented by Mg
c) Alkyl radical represented by *R*
d) Halide radical represented by *X*

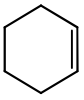
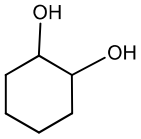
223. Alkyl iodide reacts with NaCN to give alkyl cyanide and small amount of alkyl isocyanide. Formation of these two products is due to the
a) ionic character of NaCN b) nucleophilic character of CN^-
c) ambidentate character of CN^- d) Electrophilic character of CN^-

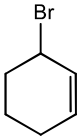
224. Which of the following gives iodoform test?
a) $CH_3 - CH_2\ (OH)$
b) C_2H_5CHO
c) $(CH_2OH)_2$
d) None of the above

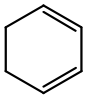
225. $C_2H_5\ Br$ can be obtained in the laboratory by the action of ethyl alcohol with:
a) KBr b) NH_4Br c) Br_2 d) KBr and conc. H_2SO_4

226. Predict the product,



a) 
b) 

c) 

d) 

227. Trichloro acetone reacts with lime water to form:
a) CH_3CHO b) $CHCl_3$ c) CH_3Cl d) CH_3OH

228. When 32.25 g of ethyl chloride is subjected to dehydrohalogenation reaction the yield of the alkene formed is 50%. The mass of the product formed is (atomic mass of chlorine is 35.5)
a) 14 g b) 28 g c) 64.5 g d) 7 g

229. Which one of the following possess highest m.pt. ?
a) Chlorobenzene b) *o*-dichlorobenzene c) *m*- dichlorobenzene d) *p*- dichlorobenzene

230. Which of the compounds when brominated turns to *meso* 2, 3-dibromobutane?
a) *Cis*-2-butene b) *Iso*-butane c) Butane d) *Trans*-2-butene

231. Iodoform can be obtained on warming NaOH and iodine with
a) $CH_3 - CH_2 - CH(OH)CH_3$
b) $(CH_3)_2CH - \overset{\overset{O}{\|}}{C} - C_2H_5$
c) $CH_3 - \overset{\overset{O}{\|}}{C} - OCH_3$
d) $(CH_3)_3\ CCH_2OH$

232. 1-chlorobutane on reaction with alcoholic potash gives
a) 1-butene b) 1-butanol c) 2-butene d) 2-butanol

233. S_N1 reaction is favoured by:
a) Non-polar solvents
b) More no. of alkyl group on the carbon atom attached to the halogen atom
c) Small groups on the carbon attached to the halogen atom
d) None of the above

234. What mass of isobutylene is obtained from 37 g of tertiary butyl alcohol by heating with 20% H_2SO_4 at 363 K, if the yield is 65%?
a) 16 g b) 18.2 g c) 20 g d) 22 g

235. Tertiary alkyl halides are practically inert to substitution by S_N2 mechanism because of
a) Steric hindrance b) Inductive effect c) Instability d) Insolubility

236. Identify the set of reagents/reaction conditions '*X*' and '*Y*' in the following set of transformations:
$CH_3CH_2CH_2Br \xrightarrow{'X'}$ Product $\xrightarrow{'Y'} (CH_3)_2\ CHBr$
a) X= dilute NaOH $aq.$; 20°C
Y= HBr/acetic acid; 20°C
b) X=conc., alc. NaOH; 80°C
Y= HBr/acetic acid; 20°C
c) X= dilute aqueous NaOH; 20°C
Y= $Br_2/CHCl_3$; 0°C
d) X= conc., alc. NaOH; 80°C
Y=$Br_2/CHCl_3$; 0°C

237. In the dichlorination reaction of propane, mixture of products are obtained. How many isomers the mixture contains?
a) 2 b) 3 c) 4 d) 5

238. The number of stereoisomers of compound
$CH_3—CH = CH—CHBr—CH_3$ would be:
a) 3 b) 6 c) 2 d) 4

239. The industrial preparation of chloroform employs acetone and:
a) Sodium chloride b) Chlorine gas c) Calcium hypochlorite d) Phosgene

240. $RX + A \rightarrow RNC$
A is
a) AgCN b) KCN c) NaCN d) HCN

241. On mixing a certain alkane with chlorine and irradiating it with ultraviolet light, it forms only one monochloroalkane.
a) Propane b) Pentane c) *Iso*-pentane d) *Neo*-pentane

242. Formation of alkane by the action of Zn on alkyl halide is called:
a) Wurtz reaction b) Kolbe's reaction c) Cannizzaro's reaction d) Frankland's reaction

243. Chloretone used as a drug is prepared by the reaction of acetone with:
a) Chlorine b) Ethyl chloride c) Chloroform d) Ethylene dichloride

244. Which is gem dihalide?
a) $CH_3 \cdot CHBr_2$ b) $CH_2Br \cdot CH_2Br$ c) $CH_3 \cdot CHBr \cdot CH_2Br$ d) None of these

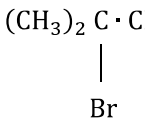
245. Which of the following is a Grignard reagent?
a) Ammoniacal solution of $AgNO_3$
b) Ethereal solution of C_2H_5MgCl
c) Alcoholic solution of KOH
d) Aqueous solution of caustic soda

246. The product formed on reaction of ethyl alcohol with bleaching powder is
a) $CHCl_3$ b) CCl_3CHO c) CH_3COCH_3 d) CH_3CHO

247. Chloral is:

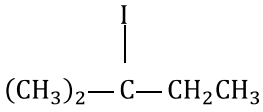
a) CCl_3CHO b) $CCl_3 \cdot CO \cdot CH_3$ c) $CCl_3 \cdot CO \cdot CCl_3$ d) $CCl_3 \cdot CH_2OH$

248. Which of the following compounds undergo E_2 reactions more easily?

a) 

b) $CH_3(CH_2)_2CH_2Cl$

c) $CH_3(CH_2)_2CH_2I$

d) 

249. Decomposition of benzene diazonium chloride by using Cu_2Cl_2/HCl to form chlorobenzene is

a) Raschig's reaction b) Sandmeyer's reaction

c) Kolbe's reaction d) Cannizaro's reaction

250. Isobutyl chloride and butyl chloride are:

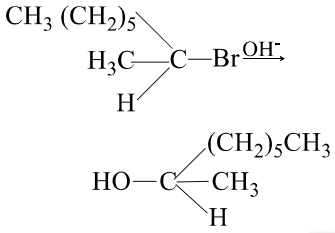
a) Position isomers b) Chain isomers c) Functional isomers d) Metamers

251. $CH_3Br + Nu^- \rightarrow CH_3 - Nu + Br^-$

The decreasing order of the rate of the above reaction with nucleophiles (Nu^-) A to D is [$Nu^- = (A)PhO^-, (B)AcO^-, (C)HO^-, (D)CH_3O^-$]

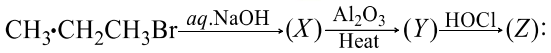
a) $D > C > A < B$ b) $D > C > B > A$ c) $A > B > C > D$ d) $B > D > C > A$

252. The reaction described below is:

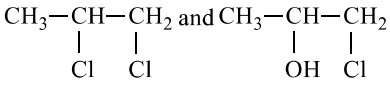


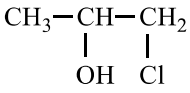
a) S_E1 b) S_N2 c) S_N1 d) S_E2

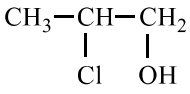
253. Identify 'Z' in the following reaction series,

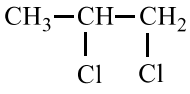


Mixture of

a) 

b) 

c) 

d) 

254. Which of the following when heated with KOH and primary amine gives carbylamine test?

a) $CHCl_3$ b) CH_2Cl_2 c) CH_3OH d) CCl_4

255. The reagent used for dehalogenation of 1,2-dichloropropane is:

a) Zn dust b) Zn—Hg c) Na d) Zn—Cu couple

256. CH_3NH_2 reacts with CH_3MgX to give:

a) Acetone b) Alcohol c) Methane d) Ethane

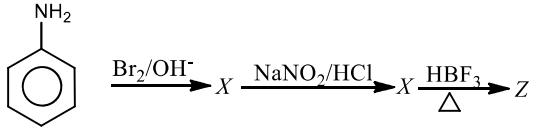
257. Which of the following haloalkanes is most reactive?

a) 1-chloropropane b) 1-bromopropane c) 2-chloropropane d) 2-bromopropane

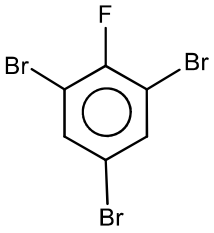
258. Iodoform is formed when ethanol is heated with:

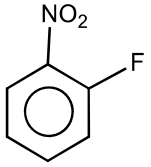
a) Potassium iodide and sodium hydroxide
b) Iodine and aqueous potassium hydroxide
c) Chloroform and iodine
d) Iodine and potassium iodide

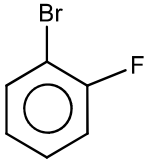
259. Tertiary alkyl halides are practically inert to S_N2 mechanism because of:
a) Insolubility b) Instability c) Inductive effect d) Steric hinderance

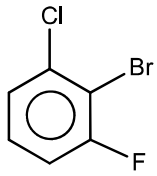
260. 

The final product, is

a) 

b) 

c) 

d) 

261. Carbon tetrachloride on treatment with Fe/H_2O gives:
a) Chloromethane b) Methane c) Chloroform d) Methylene chloride

262. Which group is displaced by a halogen group?
a) Hydroxyl (OH) group
b) Aldehyde (—CHO) group
c) Nitro (—NO_2) group
d) Keto (C=O) group

263. A small amount of alcohol is usually added to $CHCl_3$ bottles because:
a) It retards the anaesthetic property of $CHCl_3$
b) It retards the oxidation of $CHCl_3$ to phosgene
c) It converts any phosgene formed to harmless ethyl carbonate
d) Both (b) and (c)

264. Which one is correct?
a) Freon-14 is CF_4; Freon-13 is CF_3Cl;Freon-12 is $CF_2Cl_2$and Freon-11 is $CFCl_3$
b) Freons are chlorofluorocarbons
c) Freons are used as refrigerants
d) All of the above

265. The reactivity order of alkyl halides depends upon:
a) Nature of alkyl group only
b) Nature of halogen atom only
c) Nature of both alkyl group and halogen atom
d) None of the above

266. *p*-nitrobromobenzene can be converted to *p*-nitroaniline by using $NaNH_2$. The reaction proceeds through the intermediate named
a) Carbocation b) Carbanion c) Benzyne d) Dianion

267. Reagent not used to prepare an alkyl halide from an alcohol is:
a) $HCl + ZnCl_2$ b) NaCl c) PCl_5 d) $SOCl_2$

268. The catalyst used in the preparation of an alkyl chloride by the action of dry HCl on an alcohol is
a) anhy. $AlCl_3$ b) $FeCl_3$ c) anhy. $ZnCl_2$ d) Cu

269. Following is the substitution reaction in which –CN replaces –Cl.

$$R - Cl + KCN \xrightarrow[\text{alcoholic}]{\Delta} R - CN + KCl$$

To obtain propanenitrile, R – Cl should be

a) Chloroethane b) 1-chloropropane c) Chloromethane d) 2-chloropropane

270. $CH_3Br + O\overline{H} \rightarrow CH_3OH + Br^-$ reaction proceeds by S_N2 mechanism. Its rate is dependent on the concentration of
a) $CH_3Br, O\overline{H}$ b) CH_3Br only c) $O\overline{H}$ only d) CH_3Br, CH_3OH

271. If chloroform is left open in air in presence of sun-rays:
a) Explosion takes place
b) Poisonous phosgene gas is formed
c) Polymerization takes place
d) No reaction takes place

272. Westrosol is:
a) Acetylene tetrachloride
b) Acetylene dichloride
c) Trichloroethyne
d) 1,1,2-trichloroethene

273. The compound formed on heating chlorobenzene with chloral in the presence of concentrated sulphuric acid is
a) Gammexane b) DDT c) Freon d) Hexachloroethane

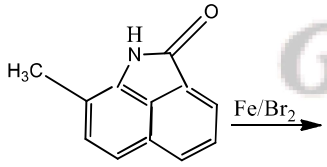
274. The C—Mg bond in CH_3CH_2MgBr is:
a) Ionic b) Non-polar covalent c) Polar covalent d) Hydrogen

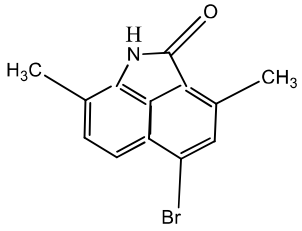
275. In S_N1 reaction, the first step involves the formation of:
a) Free radical b) Carbanion c) Carbocation d) Final product

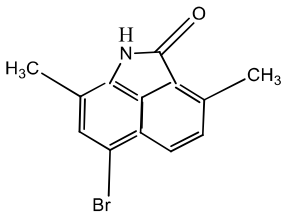
276. The alkyl group of Grignard reagent acts as:
a) Free radical b) Carbonium ion c) Carbanion d) None of these

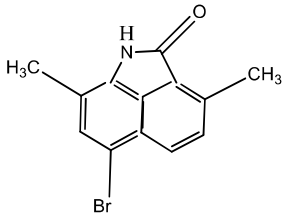
277. Methyl ketone is identified by
a) Iodoform test b) Fehling solution c) Tollen's reagent d) Schiff's reagent

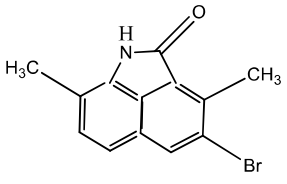
278. Product on monobromination of this compound is



a) 

b) 

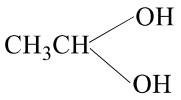
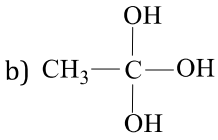
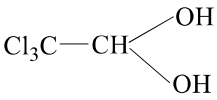
c) 

d) 

279. Which of the following is added to chloroform to slow down its aerial oxidation in presence of light?
a) Carbonyl chloride b) Ethyl alcohol c) Sodium hydroxide d) Nitric acid

280. When a solution of $AgNO_3$ is added to pure CCl_4:
a) A pale yellow precipitate is formed
b) Curdy white precipitate is formed
c) No precipitate is formed
d) None of the above

281. A compound containing two —OH groups attached with one carbon atom is unstable but which one of the following is stable?

a)  b)  c)  d) None of these

282. Westron is:

a) CHCl=CHCl b) $CHCl_2 \cdot CHCl_2$ c) $CH_2Cl—CH_2Cl$ d) None of these

283. Monohalogen derivative of alkanes with alcoholic KOH gives:

a) Alkane
b) Alkene
c) Alkyne
d) Alicyclic hydrocarbon

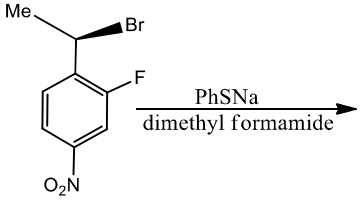
284. The reaction $RCl + NaI \xrightarrow{\text{Acetone}} R — I + NaCl$ is known as:

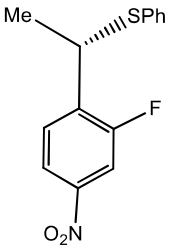
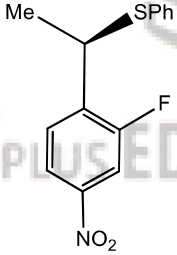
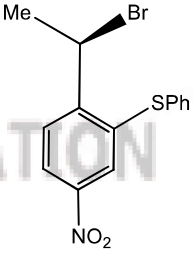
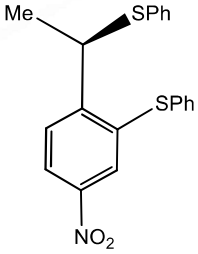
a) Wurtz reaction b) Fittig reaction c) Frankland's reaction d) Finkelstein's reaction

285. The hydrogen atom in chloroform is:

a) Acidic b) Basic c) Neutral d) None of these

286. The major product of the following reaction is



a)  b)  c)  d) 

287. Ethyl bromide and isopropyl chloride can be distinguished by:

a) Alcoholic $AgNO_3$
b) Comparing their colours
c) Burning the compound on spatula
d) Aqueous KOH solution

288. In the following sequence of reactions

$C_2H_5Br \xrightarrow{AgCN} X \xrightarrow{\text{Reduction}} Y$; Y is

a) *n*-propyl amine b) Isopropylamine c) Ethylamine d) ethylmethyl amine

289. Which alkyl halide is preferentially hydrolysed by S_N1 mechanism?

a) CH_3Cl b) CH_3CH_2Cl c) $CH_3CH_2CH_2Cl$ d) $(CH_3)_2C \cdot Cl$

290. Treatment of ammonia with excess of ethyl chloride will yield:

a) Diethyl amine
b) Ethane
c) Tetraethyl ammonium chloride
d) Methyl amine

291. In a group of isomeric alkyl halides, the order of boiling points is

a) primary < secondary < tertiary b) primary > secondary < tertiary
c) primary < secondary > tertiary d) primary > secondary > tertiary

292. Ethylene dichloride and ethylidene chloride are isomeric compounds. Identify the statement which is not

applicable to both of them?

a) React with alcoholic potash

b) React with aqueous potash and give the same products

c) Are dihalides

d) Answer Beilstein's test

293. The Mg—Br bond in CH_3CH_2MgBr is:

a) Ionic b) Non-polar c) Covalent d) None of these

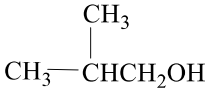
294. Chloroform is slowly oxidised by air in the presence of light and air to form

a) Formyl chloride b) Trichloro methanol c) Phosgene d) Formaldehyde

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

a) $CH_3CH_2CH(OH)CH_2CH_3$

b) $C_6H_5CH_2CH_2OH$

c) 

d) $PhCHOHCH_3$

296. 2-bromopentane is heated with potassium ethoxide in ethanol. The major product is:

a) *trans*-pent-2-ene b) 2-ethoxy pentane c) pent-1-ene d) *cis*-pent-2-ene

297. Bottles containing C_6H_5I and $C_6H_5CH_2I$ lost their original labels. They were labelled A and B for testing. A and B were separately taken in a test tube and boiled with NaOH solution. The end solution in each tube was made acidic with dilute HNO_3 and then some $AgNO_3$ solution was added. Substance B gave a yellow precipitate. Which one of the following statements is true for this experiment?

a) A was C_6H_5I b) A was $C_6H_5CH_2I$

c) B was C_6H_5I d) Addition of HNO_3 was unnecessary

298. $2CHCl_3 + O_2 \xrightarrow{X} 2COCl_2 + 2HCl$

In the above reaction X stands for:

a) An oxidant b) A reductant c) Light and air d) None of these

299. Identify the product (A) in following reaction series,

$CH_3CN \xrightarrow{Na/C_2H_5OH} (X) \xrightarrow{HNO_2} (Y) \xrightarrow{[O]}$

$(Z) \xrightarrow[\text{reagent}]{\text{Tollen's}} (A)$:

a) CH_3CHO b) CH_3CONH_2 c) CH_3COOH d) $CH_3—CH_2—NHOH$

300. Isocyanide test is used to detect:

a) Primary alcohols b) Primary amines c) Secondary amines d) Secondary alcohols

301. Which would be obtained by boiling $CHCl_3$ with caustic soda?

a) CH_3COONa b) $HCOONa$ c) $Na_2C_2O_4$ d) CH_3OH

302. In the following sequences of reactions:

$CH_3CH_2CH_2I \xrightarrow{KOH(alc.)} (A) \xrightarrow{Br_2} (B) \xrightarrow{NaNH_2/NH_3} (C)$

the end product (C) is:

a) Alkene b) Alkanol c) Alkyne d) Alkyl amine

303. Which of the following compound give yellow precipitate with I_2 and NaOH?

a) CH_3OH b) $CH_3CH_2CH_2OH$ c) $C_2H_5OC_2H_5$ d) CH_3CH_2OH

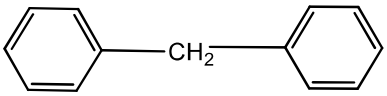
304. In the reaction of phenol with $CHCl_3$ and aqueous NaOH at 70°C, the electrophile attacking the ring is:

a) $CHCl_3$ b) $CHCl_2$ c) CCl_2 d) $COCl_2$

305. The product formed in the reaction of HX with $(CH_3)_2C=CH_2$ is:

a) $(CH_3)_2CXCH_3$ b) $(CH_3)_2CH \cdot CH_2X$ c) $(CH_3)_2CHCH_3$ d) $(CH_3)_2CXCH_2X$

306. The molecular formula of diphenyl methane is

 is $C_{13}H_{12}$

How many structural isomers are possible when one of the hydrogen is replaced by a chlorine atom?

a) 6 b) 4 c) 8 d) 7

307. For the preparation of *p*-nitroiodobenzene from *p*-nitroaniline, the best method is

a) $NaNO_2/HCl$ followed by KI b) $NaNO_2/HCl$ followed by CuCN

c) $LiAlH_4$ followed by I_2 d) $NaBH_4$ followed by I_2

308. Iodoform test is not given by

a) HCHO b) CH_3CHO c) CH_3COCH_3 d) C_2H_5OH

309. Fires result from the combustion of alkali metals can be extinguished by:

a) CCl_4 b) Sand c) Water d) Kerosene

310. The reactivities of methyl chloride (A) propyl chloride (B) and chlorobenzene (C) are in the order :

a) $A > B > C$ b) $C > B > A$ c) $A > C > B$ d) $B > A > C$

311. A sample of chloroform before being used as an anaesthetic is tested by:

a) $AgNO_3$ solution

b) $AgNO_3$ solution after boiling with alc. KOH

c) Fehling's solution

d) Ammoniacal Cu_2Cl_2

312. Ethylene dichloride can be prepared by adding HCl to:

a) Ethane b) Ethylene c) Acetylene d) Ethylene glycol

313. Which of the following can be obtained by halide exchange method?

a) CH_3Cl b) C_2H_5Cl c) CH_3I d) CH_3Br

314. Grignard reagent undergoes:

a) Nucleophilic substitution

b) Nucleophilic addition

c) Both (a) and (b)

d) None of the above

315. Ethylene on treatment with chlorine gives:

a) Ethylene dichloride

b) Ethylene chlorohydrin

c) CH_4

d) C_2H_6

316. Ethylidene dichloride on treatment with aq. KOH gives:

a) CH_3CHO b) $\begin{matrix} CH_2OH \\ | \\ CH_2OH \end{matrix}$ c) HCHO d) $\begin{matrix} CHO \\ | \\ CHO \end{matrix}$

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

a) Phenyl isocyanide b) Nitrobenzene c) Acetylene d) Chlorobenzene

318. In the reaction,

$2A$ + dry oxide $\xrightarrow{\Delta}$ ether + $2AgX$

A is a/an

a) Primary alcohol b) Acid c) Alkyl halide d) Alcohol

319. Ethyl alcohol is used as a preservative for chloroform because it

a) Prevents aerial oxidation of chloroform b) Prevents decomposition of chloroform

c) Decomposes phosgene to CO and Cl_2 d) Removes phosgene by converting it to ethyl carbonate

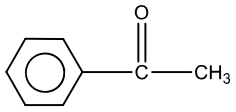
320. Anhydrous HCl gas, on passing through ethyl alcohol, in presence of anhy. $ZnCl_2$ gives:

a) Ethane b) Ethyl chloride c) Ethene d) CCl_4

321. Which one of the isomers of cyclohexane hexachloride is strong pesticide?

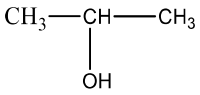
a) α b) β c) γ d) δ

322. Which one of the following does not give iodoform?

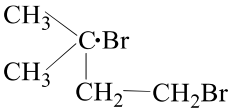
a) 

b) CH_3OH

c) $CH_3\ CH_2OH$

d) 

323. The IUPAC name of the compound ,

 is :

a) 1,3-dibromo-3-methylbutane
b) 3-methyl-1,2-bromobutane
c) 3-methyl-1,3-bromopropane
d) None of the above

324. Ethyl iodide on treatment with alcoholic potash gives:
a) Ethyl alcohol b) Ethane c) Acetylene d) Ethylene

325. Chloroform is used as an:
a) Antiseptic b) Anaesthetic c) Insecticide d) Antipyretic

326. Chlorination of toluene in presence of light and heat followed by treatment with aqueous NaOH gives
a) *o*-cresol b) *p*-cresol
c) mixture of *o*-cresol and *p*-cresol d) 1, 3, 5-trihydroxy toluene

327. 1, 2-dibromoethane reacts with alcoholic KOH to yield a product *X*. The hybridisation state of the carbons present in *X* respectively, are
a) sp, sp b) sp^3, sp^3 c) sp^3, sp^2 d) sp^3, sp^2

328. The phosphorus pentachloride reacts with ethanol to give:
a) Ethyl chloride b) Ethylene chloride c) Ethylidene chloride d) None of these

329. 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

330. The compound formed in carbylamine test is:
a) $C_6H_5—C\equiv N$ b) $C_6H_5—N\rightleftharpoons C$ c) $CH_3—O—C\equiv N$ d) $CH_3—N=C=O$

331. Best method of preparing alkyl chloride is
a) $ROH + SOCl_2 \longrightarrow$ b) $ROH + PCl_5 \longrightarrow$
c) $ROH + PCl_3 \longrightarrow$ d) $ROH + HCl \xrightarrow{Anhy.ZnCl_2}$

332. $CH_2=CHCl$ reacts with HCl to form:
a) $CH_2Cl—CH_2Cl$ b) $CH_3—CHCl_2$ c) $CH_2=CHCl \cdot HCl$ d) None of these

333. In dihalogen derivatives if two halogen atoms are attached to the same carbon atom, the compound is called:
a) Gem dihalide b) Vicinal dihalide c) Both (a) and (b) d) None of these

334. Vapour density of an organic compound is 23.0. It contains 52.17% of carbon and 13% of hydrogen. The compound gives iodoform test. The compound is:
a) Ethanol b) Dimethyl ether c) Acetone d) Methanal

335. An alkyl halide reacts with alcoholic ammonia in a sealed tube, the product formed will be
a) A primary amine b) A secondary amine
c) A tertiary amine d) A mixture of all the three

336. Chloropicrin is obtained by the reaction of
a) Steam on carbon tetrachloride b) Nitric acid on chlorobenzene
c) Chlorine on picric acid d) Nitric acid on chloroform

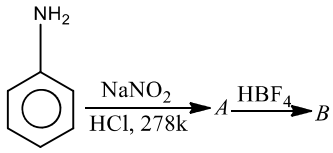
337. Which of the following solvent may be used instead of ether in the preparation of Grignard reagent?
a) THF b) $C_6H_5OCH_3$ c) $C_6H_5N(CH_3)_2$ d) All are correct

338. Chloroform on reduction with Zn and HCl (alc.) gives:
a) Formic acid b) Chloretone c) Chloropicrin d) Methylene dichloride

339. Identify X and Y in the following sequence
$C_2H_5Br \xrightarrow{X}$ product $\xrightarrow{Y} C_3H_7NH_2$
a) $X = KCN, \quad Y = LiAlH_4$ b) $X = KCN, \quad Y = H_3O^+$
c) $X = CH_3Cl, \quad Y = AlCl_3/HCl$ d) $X = CH_3NH_2, \quad Y = HNO_2$

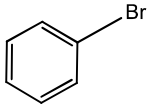
340. In alkyl nitrites the oxygen of —O—N=O group is linked with carbon. An alkyl nitrite is:
a) An ester b) A nitro compound c) An amide d) A nitrile

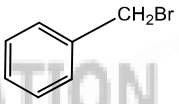
341. In the chemical reactions,



The compounds 'A' and 'B' respectively are
a) Nitrobenzene and fluorobenzene
b) Phenol and benzene
c) Benzene diazonium chloride and fluorobenzene
d) Nitrobenzene and chlorobenzene

342. Chloroform, when kept open, is oxidised to
a) CO_2 b) $COCl_2$ c) CO_2 , Cl_2 d) None of these

343. $X \xrightarrow[HNO_3]{AgNO_3}$ Y Yellow or white ppt.
Which of the following cannot be X?
a) 

b) $(CH_3)_2CHCl$ c) 

d)