



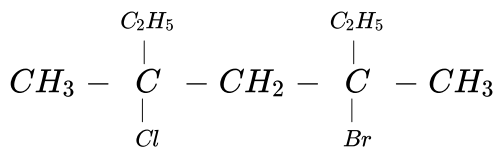
## CHEMISTRY

### BOOKS - MODERN PUBLICATION

### HALOALKANES AND HALOARENES

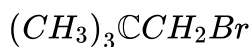
#### EXAMPLE

1. Write IUPAC name of the following compound :



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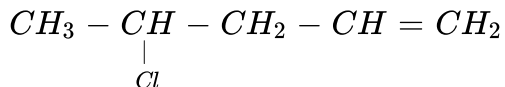
2. Write IUPAC name of the following compound :



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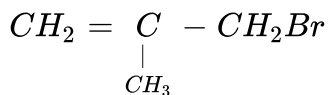
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3. Write IUPAC name of the following compound :



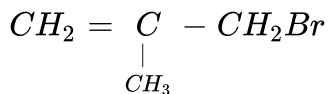
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4. Write IUPAC name of the following compound :



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5. Write IUPAC name of the following compound :



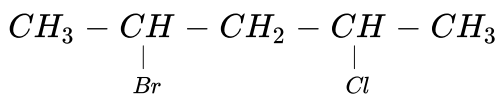
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6. Write IUPAC name of the following compound :



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7. Write the IUPAC name of the following compound:



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8. Write the structure of the following compound :

2-Chloro-3-methylpentane.

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9. Write the structure of the following compound :

1-Chloro-4-ethylcyclohexane.



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10. Write the structure of the following compound :

4-tert-Butyl-3-iodoheptane.



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11. Write the structure of the following compound :

1-4-Dibromobut-2-ene.



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12. Write the structure of the following compound :

1-Bromo-4-sec-butyl-2-methylbenzene.



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13. Draw the structures of all the eight structural isomers that have the molecular formula  $C_5H_{11}Br$ . Name each isomer according to IUPAC system and classify them as primary, secondary or tertiary bromide.

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14. German silver has the following composition-

A. Cu, Fe, Ni

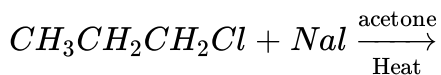
B. Cu, Zn, Ni

C. Cu, Mg, Al

D. Cu, Mn, Cr

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15. Write the structure of the major organic product in each of the following reactions :



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16. Write the structure of the mayor product and IUPAC name of the following reaction :  $CH_3CH_2Cl + SbF_3 \xrightarrow{\text{Heat}}$

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17. Write the structure of the major product and IUPAC name of the following reaction :  $CH_3CH_2CH_2OH + SOCl_2 \rightarrow$

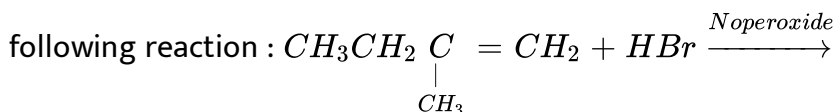
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18. Write the structure of the major organic product in each of the following reactions :



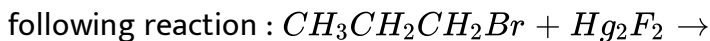
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19. Write the structure of the mayor product and IUPAC name of the



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20. Write the structure of the mayor product and IUPAC name of the



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21. Write the structure of the mayor product and IUPAC name of the following reaction :  $CH_3CH_2C \equiv CH + HCl(1equiv) \rightarrow$

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22. Write the structure of the mayor product and IUPAC name of the following reaction :  $CH_3CH = CH_2 + Cl_2 \xrightarrow{773-873K}$

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23. Out of  $S_N1$  and  $S_N2$ , which reaction occurs with Inversion of configuration.

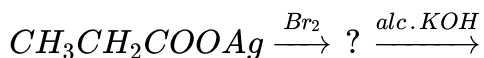
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24. Out of  $S_N1$  and  $S_N2$ , which reaction occurs with Racemisation.

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25. Complete the following reaction (giving major product) :



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26. Write the iupac name of the following :  $[Cu(NH_3)_4]^{+2}$

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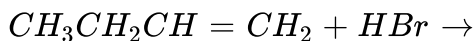
27. Write the iupac name of the following :  $[Cu(NH_3)_3Cl_3]$

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28. Write the iupac name of the following :  $[Fe(C_2O_4)_3]^{-3}$

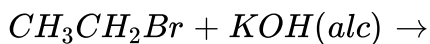
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29. Complete the following reaction equation :



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30. Complete the following reaction (giving major product) :



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31. Write the oxidation number of central atom in  $[Ag(CN)_2]^{-1}$

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32. Solder has the following composition-

A. Pb and Sn

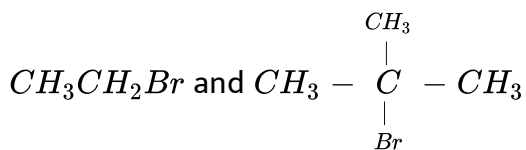
B. Pb and Fe

C. Pb and Zn

D. Pb and Al

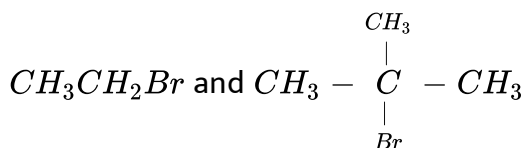
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33. In the following pairs of the halogen compounds, which would undergo  $S_N2$  faster ?



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34. Which one of the following pairs undergoes  $S_N1$  substitution reaction faster and why ?



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35. Which compound of the following pairs will react faster in  $S_N2$  reaction with  $OH^-$  ?

$CH_3Br$  or  $CH_3I$



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36. Which halogen compound in the following pairs will react faster in  $S_N2$  reactions.

$(CH_3)_3C - Cl$  or  $CH_3 - Cl$



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37. Manganese steel has the following composition-

A. Al and Cu

B. Mn and Fe

C. Cu and Zn

## D. Mn and Cu

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38. Which one of the following compounds is more easily hydrolyzed by KOH and why?  $CH_3CHClCH_2CH_3$  or  $CH_3CH_2Cl$

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39. Arrange the following compounds in increasing order of their property \_\_\_\_\_ as \_\_\_\_\_ indicated:

$CH_3CH_2CH(Br)COOH$ ,  $CH_3CH(Br)CH_2COOH$ ,  $(CH_3)_2CHOOH$ ,  $ClCH_2COOH$

(acidic strength).

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40. Write the iupac name of the following :  $[PtCl_6]^{-2}$



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**41.** Write the structure of the following compound and identify them as  $1^\circ$ ,  $2^\circ$  or  $3^\circ$  halides.

2-Bromo-3-methylbutane.



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**42.** Aluminium bronze has the following composition-

- A. Pb and Fe
- B. Cr and Cu
- C. Ni and Mn
- D. Al and Cu

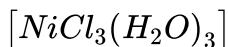


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43. Write the iupac name of the following :  $[Co(OH)(NH_3)_5]^{+2}$

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44. Write the oxidation number of central atom in the following :



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45. Write the oxidation number of central atom in the following :



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46. Write the oxidation number of central atom in the following :



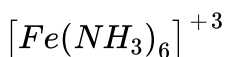
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47. Write the main product when.

2, 4, 6- trinitrochlorobenzene is subjected to hydrolysis.

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48. Write the oxidation number of central atom in the following :



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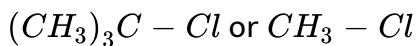
49. Write the oxidation number of central atom in the following :



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50. Which halogen compound in the following pairs will react faster in  $S_N2$  reactions.



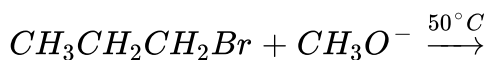


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51. Write the oxidation number of central atom in  $[Ni(NH_3)_4]^{+2}$

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52. Write the product or products of the following reaction:



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53. How will you carry out the following conversions in not more than two steps : Toluene to benzyl alcohol .

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**54.** How will you carry out the following conversions in not more than two steps : Ethanol to ethyl fluoride.

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**55.** How will you carry out the following conversions in not more than two steps : Benzene to biphenyl.

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**56.** How will you carry out the following conversions in not more than two steps : 1-Chlorobutane to n-octane.

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**57.** How will you carry out the following conversions in not more than two steps : Benzyl alcohol to phenylethanenitrile.





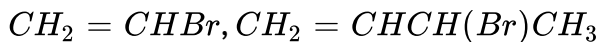
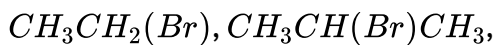
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58. How will you carry out the following conversions in not more than two steps : But-1-ene to But-2-ene.



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59. Arrange the following in order of their expected  $S_N1$  reactivity :



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60. The metals that are used in the formation of alkanols are-



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61. Arrange the following in order of their expected  $S_N1$  reactivity :

$(CH_3)_3Cl$ ,  $C_6H_5C(CH_3)_2Cl$ ,  $(CH_3)_2CHCl$ ,  $CH_3CH_2CH_2Cl$

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62. An optically active compound having molecular formula  $C_7H_{15}Br$  reacts with KOH to give a racemic mixture of products. Write the mechanism involved for this reaction.

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63. Propose mechanism of the reaction taking place when (-)-2-Bromooctane reacts with sodium hydroxide to form (+)-octane-2-ol. :

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64. Propose mechanism of the reaction taking place when 2-Bromopentane is heated with (alc.) KOH to form alkenes.

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65. How will you convert the following : Isopropyl chloride to n-propyl chloride.

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66. How will you convert the following : Methyl bromide to ethylamine.

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67. How will you convert the following : Chlorobenzene to benzoic acid .

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68. How will you convert the following : Methyl bromide to acetic acid.

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69. How will you convert the following : Propane to allyl chloride.

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70. How will you convert the following : 1-Bromopropane to 2 - bromopropane.

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71. How will you convert the following : Propene to propyne.

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72. How will you convert the following : Ethanol to but-1-yne.

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73. How will you distinguish between the following (give one chemical test): Chlorobenzene and chlorocyclohexane.

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74. How will you distinguish between the following (give one chemical test): Chlorobenzene and benzyl chloride.

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75. How will you distinguish between the following (give one chemical test): Ethyl chloride and vinyl chloride.

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76. How will you distinguish between the following (give one chemical test): Chlorobenzene and n-hexylchloride.

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77. How will you distinguish between the following (give one chemical test): Chloroethane and bromoethane.

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78. How will you distinguish between the following (give one chemical test): 3-Bromopropene and 1-bromopropane.

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79. Out of  $CH_3 - \underset{\substack{| \\ CH_3}}{CH} - CH_2 - Cl$  and  $CH_3 - CH_2 - \underset{\substack{| \\ CH_3}}{CH} - Cl$ , which is more reactive towards  $S_N1$  reaction and why?

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

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

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82. Why is chloroform stored in dark coloured bottles?

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**83.** Haloarenes are insoluble in water but soluble in benzene. Explain.

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

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**85.** The metals used in the formation of coin metal are-

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**86.** Why is Vinyl chloride less reactive than ethyl chloride ?

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87. Why the use of chloroform as anesthetic is decreasing ?

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88. The metals used in the formation of gun metal are-

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89. Express 1656 in roman numbers.

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90. Which of the following two compounds would react faster by  $S_N2$  path way : 1-bromobutane or 2-bromobutane and why ?

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91. Allyl chloride is more reactive than n-propyl chloride towards nucleophilic substitution reaction. Explain why?

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92. The metals used in the formation of constantin are-

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93. An alkyl halide with molecular formula  $C_4H_9Br$  is optically active. What is its structure?

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94. Which out of the two : 2-cyclopentanol or 3-cyclopentanol has chiral centre.

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95. Which of the two:  $CH_3CH = CHCH_2Br$  or  $CH_3CHCH = CH_2$  is  
achiral and chiral.

$Br$

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96. Allyl chloride is hydrolysed more readily than n-propyl chloride.

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97. The metals used in the formation of Monel metal are-

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98. Which will have a higher boiling point? 1-Chloro ethane or 2-methyl-2-chlorobutane . Give reasons.

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99. An acid having molecular formula  $C_3H_5O_2Br$  is optically active. What is its structure ?

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100. Express 1611 in roman numbers.

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101. Express 1612 in roman numbers.

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102. Iodoform has antiseptic properties. Give one reason to support this.

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**103.** The metals used in the formation of German silver are-

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**104.** Express 1617 in roman numbers.

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**105.** Write the structure of the following compound :

2-Chloro-3-methylpentane.

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**106.** The metals used in the formation of Dutch metal are-

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107. Express 1615 in roman numbers.

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108. Express 1616 in roman numbers.

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109. Write the structure of the following compound :

1-Bromo-4-sec-butyl-2-methylbenzene.

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

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111. Write structures of different dihalogen derivatives of propane.

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112. Express 1618 in roman numbers.

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113. Express 1620 in roman numbers.

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114. The metals used in the formation of magneleum are-

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115. Express 1621 in roman numbers.

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116. Write the oxidation number of central atom in the following compound :  $[Co(H_2NCH_2CH_2NH_2)_3]SO_4$

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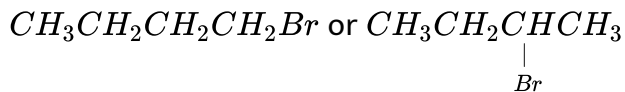
117. Express 1622 in roman numbers.

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118. The metals used in the formation of Duralumin are-

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119. Which alkyl halide from the following pairs would you expect to react more rapidly by an  $S_N2$  mechanism ? Explain your answer.



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120. Express 1623 in roman numbers.

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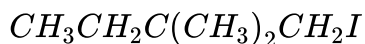
121. Express 1625 in roman numbers.

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122. Express 1626 in roman numbers.

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**123.** Name the following halides according to IUPAC system and classify them as alkyl, allyl, benzyl (primary, secondary, tertiary), vinyl or aryl halides :



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**124.** Express 1627 in roman numbers.

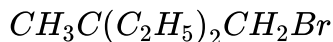
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**125.** Express 1628 in roman numbers.

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**126.** Name the following halides according to IUPAC system and classify them as alkyl, allyl, benzyl (primary, secondary, tertiary), vinyl or aryl

halides :



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127. The metals used in the formation of hydroleum are-

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128. Express 1630 in roman numbers.

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129. Name the following halides according to IUPAC system and classify them as alkyl, allyl, benzyl (primary, secondary, tertiary), vinyl or aryl halides :



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**130.** Express 1631 in roman numbers.



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**131.** The metals used in the formation of Aluminium bronze alloy are-



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**132.** Express 1632 in roman numbers.



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**133.** Express 1633 in roman numbers.



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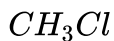
134. Write IUPAC name of the following compound :  $CHF_2CBrClF$

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135. Express 1635 in roman numbers.

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136. Give the IUPAC name of the following compound:



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137. Express 1636 in roman numbers.

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**138.** The metals used in the formation of solder alloy are-

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**139.** Write the structure of the following compound :

2-Chloro-3-methylpentane.

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**140.** The metals used in the formation of nichrome alloy are-

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**141.** Write the structure of the following organic halogen compound :

1-Chloro-4-ethylcyclohexane.

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**142.** Write the structure of the following organic halogen compound :

2-(2-Chlorophenyl)-1-iodooctane .



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**143.** The metals used in the formation of manganese steel are-



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**144.** Write the structure of the following organic halogen compound :

4-tert-Butyl-3-iodoheptane .



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**145.** Write the structure of the following compound :

1-Bromo-4-sec-butyl-2-methylbenzene.

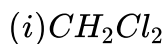


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146. Write the oxidation number of central atom in  $[PtCl_6]^{-2}$

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



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148. Hydrocarbon  $C_5H_{10}$  does not react with chlorine but gives a single monochloro compound,  $C_5H_9Cl$  in bright sunlight: Identify the hydrocarbon.

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149. Write the isomers of the compound having the formula  $C_4H_9Br$ .

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150. Write the equations for the preparation of 1-iodobutane from  
1- butanol

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151. Write the equations for the preparation of 1-iodobutane from  
1 - chlorobutane

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152. Write the equations for the preparation of 1-iodobutane from  
but -1- ene

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



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154. Which compound of the following pairs will react faster in  $S_N2$  reaction with  $OH^-$  ?

$CH_3Br$  or  $CH_3I$



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155. Which compound of the following pairs will react faster in  $S_N2$  reaction with  $OH^-$  ?

$(CH_3)_3CCl$  or  $CH_3Cl$



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**156.** Predict the alkenes that would be formed by the dehydrohalogenation of the following halides with sodium ethoxide and identify the major alkene : 1-Bromo-1-methylcyclohexane.

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**157.** Predict the alkenes that would be formed by the dehydrohalogenation of the following halides with sodium ethoxide and identify the major alkene : 2-Chloro-2-methylbutane.

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**158.** Predict the alkenes that would be formed by the dehydrohalogenation of the following halides with sodium ethoxide and identify the major alkene : 3-bromo-2,2,3-trimethylpentane

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**159.** How will you convert the following : Ethanol to but-1-yne.

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**160.** How will you bring the following conversion?

Ethane to bromoethene.

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**161.** How will you bring the following conversion?

Propene to 1-nitropropane.

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**162.** How will you carry out the following conversions in not more than two steps : Toluene to benzyl alcohol .

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**163.** How will you convert the following : Propene to propyne.

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**164.** How will you carry out the following conversions in not more than two steps : Ethanol to ethyl fluoride.

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**165.** How will you bring the following conversion?

Bromomethane to propanone.

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**166.** How will you convert:

But-1-ene to But-2-ene

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**167.** How will you bring the following conversion?

1-Chlorobutane to n-octane.

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**168.** How will you bring the following conversion?

Benzene to biphenyl.

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

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

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**171.** Explain why

Grignard reagents should be prepared under anhydrous conditions.

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**172.** Give the uses of Freon 12, DDT, Carbon tetrachloride and Iodoform.

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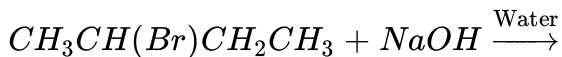
**173.** Express 1638 in roman numbers.

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**174.** Express 1650 in roman numbers.

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175. Write the structure of the major organic product in each of the following reactions :



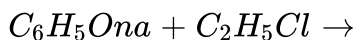
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176. Write the structure of the major organic product in each of the following reactions :



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177. Write the structure of the major organic product in each of the following reactions :



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178. Write the structure of the major product and IUPAC name of the following reaction :  $CH_3CH_2CH_2OH + SOCl_2 \rightarrow$

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179. Write the structure of the major organic product of the following reaction :  $CH_3CH_2CH = CH_2 + HBr \xrightarrow{\text{Peroxide}}$

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180. Express 1651 in roman numbers.

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181. Express 1652 in roman numbers.

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**182.** Express 1653 in roman numbers.

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**183.** Arrange the compounds of set in order of reactivity towards  $S_N2$  displacement : 1-Bromo-3-methylbutane, 2-Bromo-2-methylbutane, 3-Bromo-2-methylbutane.

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**184.** Rearrange the compounds of each of the following sets in order of reactivity towards  $S_N2$  displacement :

1-Bromo-3-methylbutane,      2-Bromo-2-methylbutane,      3-Bromo-2-methylbutane

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**185.** Out of  $C_6H_5CH_2Cl$  and  $C_6H_5CHClC_6H_5$ , which is more easily hydrolysed by aqueous KOH ?

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

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**187.** How are the following conversions carried out ?

(i) Propene  $\rightarrow$  Propan -2- ol

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**188.** How will you convert the following : Ethanol to but-1-yne.

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**189.** How will you convert the following : 1-Bromopropane to 2 - bromopropane.

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**190.** Express 1655 in roman numbers.

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**191.** How the following conversion can be carried out ?

Benzene to 4-bromonitrobenzene.

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**192.** The metals used in the formation of chromium steel are-

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193. How do you convert ethanol to propane nitrile.

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194. Write the oxidation number of central atom in  $[Cu(NH_3)_4]^{+2}$

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195. Write the oxidation number of central atom in  $[Co(NH_3)_3Cl_3]$

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196. Ammonal has the following composition-

- A. Al powder and ammonium nitrate
- B. Hydrogen peroxide and ferric chloride
- C. Sodium carbonate and potassium carbonate

D. None of the above

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**197.** How will you convert ethyl bromide into propanoic acid ?

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**198.** How the following conversion can be carried out ?

But-1-ene to n-butyliodide.

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**199.** Aquaregia has the following composition-

A. Al and Ammonium nitrate

B. conc. Nitric acid and conc. Hydrochloric acid



C. Copper sulphate and Sodium hydroxide

D. Diluted Sulphuric acid

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200. Write the oxidation number of central atom in  $[Fe(ox)_3]^{-3}$

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201. Write the oxidation number of central atom in  $[Co(en)_3]^{+3}$

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202. How the following conversion can be carried out ?

2-Bromopropane to 1-bromopropane.

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203. How the following conversion can be carried out ?

Chloroethane to butane.

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204. Bordeaux mixture has the following composition-

- A. Alkaline potassium permanganate
- B. Solution of ferrous sulphate and quick lime
- C. Solution of copper sulphate and quick lime
- D. None of the above

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205. Write the oxidation number of central atom in  $[Ni(NH_3)_6]Cl_2$

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206. Write the oxidation number of central atom in  $[Co(NH_3)_5Cl]Cl_2$

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

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208. Primary alkyl halide  $C_4H_9Br$  (A) is reacted with alcoholic KOH to give compound (B). Compound (B) is reacted with HBr to give (C) which is an isomer of (A). When (A) is reacted with sodium metal, it gives compound (D)  $C_8H_{18}$  which is different from the compound when A-butyl bromide is reacted with sodium. Give the structural formula of (A) and write the equations for all the reactions.



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209. What happens when :

n-butyl chloride is treated with alcoholic KOH.



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210. What happens when -

bromobenzene is treated with Mg in the presence of dry ether



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211. What happens when chlorobenzene is subjected to hydrolysis ?



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212. Write the iupac name of the following compound :  $[Mn(NH_3)_6]^{+2}$





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213. Write the oxidation number of central atom in the following compound :  $[Co(NH_3)_4Cl(NO_2)]$



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214. Write the oxidation number of central atom in the following compound :  $K_3[Fe(CN)_5NO]$



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215. Write the oxidation number of central atom in the following compound :  $[Fe(en)_3]^{+3}$



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**216.** Write the oxidation number of central atom in the following compound :  $[Co(SCN)_4]^{-2}$

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**217.** Which halogen compound in the following pairs will react faster in  $S_N2$  reactions.

$(CH_3)_3C - Cl$  or  $CH_3 - Cl$

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**218.** Iodoform has antiseptic properties. Give one reason to support this.

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

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220. Discuss how brass is formed?

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

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222. Why solubility of Haloalkanes in water is very low ?

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223. Classify the following compound as primary, secondary and tertiary halides.

1-Bromobut-2-ene.

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**224.** Classify the following compound as primary, secondary and tertiary halides.

4-Bromopent-2-ene.

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**225.** Classify the following compound as primary, secondary and tertiary halides.

2-Bromo-2-methylpropane.

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**226.** Write the oxidation number of central atom in the following compound :  $K[PtCl_5(NH_3)]$

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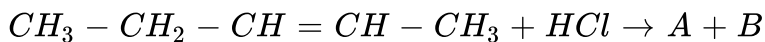
227. Express 1782 in roman numbers.

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228. Write the oxidation number of central atom in the following compound :  $[PtCl_5(NH_3)]^{-1}$

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229. Identify the products A and B formed in the following reaction :



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230. Write down the structure and IUPAC name for neo-pentylbromide.

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**231.** A hydrocarbon of molecular mass  $72 \text{ g mol}^{-1}$  gives a single monochloro derivative and two dichloro derivatives on Photo chlorination. Give the structure of the hydrocarbon.

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**232.** Name the alkene which will yield 1-chloro-1- methylcyclohexane by its reaction with HCl. Write the reactions involved.

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**233.** Write the oxidation number of central atom in the following compound :  $[NiCl_2(PPh_3)_2]$

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**234.** Why can aryl halides not be prepared by reaction of phenol with HCl in the presence of  $ZnCl_2$ ?

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**235.** Write the oxidation number of central atom in the following compound :  $K_3[Fe(OH)_6]$

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**236.** Allyl chloride is hydrolysed more readily than n-propyl chloride.

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

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**238.** How do polar solvents help in the first step in  $S_N1$  mechanism ?

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**239.** Write the oxidation number of central atom in the following compound :  $[Fe(CO)_5]$

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**240.** Write the oxidation number of central atom in the following compound :  $[Cr(NH_3)_3(H_2O)_3]Cl_3$

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**241.** Write the oxidation number of central atom in the following compound :  $K_3[Fe(CH_3COO)_2(CN)_4]$

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**242.** Elimination reactions (especially  $\beta$ -elimination) are as common as the nucleophilic substitution reaction in case of alkyl halides. Specify the reagents used in both cases.



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**243.** Discuss how bronze is formed?



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**244.** *tert*-Butylbromide reacts with aq. NaOH by  $S_N1$  mechanism while *n*-butylbromide reacts by  $S_N2$  mechanism. Why?



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**245.** Predict the major product formed when HCl is added to isobutylene.

Explain the mechanism involved.

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**246.** Write the oxidation number of central atom in the following

compound :  $Na_3[Co(NO_2)_6]$

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**247.** How can you obtain iodoethane from ethanol when no other iodine

containing reagent except NaI is available in the laboratory ?

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**248.** Write the oxidation number of central atom in the following

compound :  $Na_3[Fe(C_2O_4)_3]$





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**249.** Why alkyl halides are generally not prepared in the laboratory by free radical halogenation of alkanes?



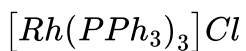
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**250.** Propose reaction for the preparation of : (i) allyl iodide and (ii) allyl fluoride from prop-1-ene.



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**251.** Write the oxidation number of central atom of following compound :

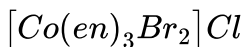


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**252.** RCl is hydrolysed to ROH slowly but the reaction is rapid if a catalytic amount of KI is added to the reaction mixture. Explain.

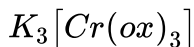
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**253.** Write the oxidation number of central atom of following compound :



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**254.** Write the oxidation number of central atom following compound :



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**255.** A dihalogen derivative (A) of a hydrocarbon having two carbon atoms reacts with alcoholic potash and forms another hydrocarbon which gives



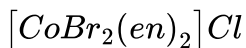
a red precipitate with ammoniacal solution of cuprous chloride. Compound 'A' gives an aldehyde when treated with aqueous KOH. Write down the name and formula of the compound.

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256. An organic compound  $C_8H_{18}$  on monochlorination gives a single monochloride. Write the structure of the hydrocarbon.

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257. Write the oxidation number of central atom of following compound :

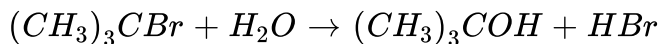
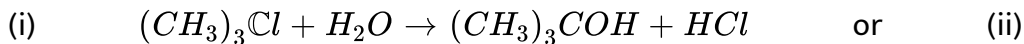


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258. The following reaction gives two products. Write the structures of the products.  $C_6H_5CH_2CHClC_6H_5 \xrightarrow[\text{Heat}]{\text{alc. KOH}}$

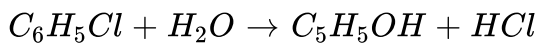
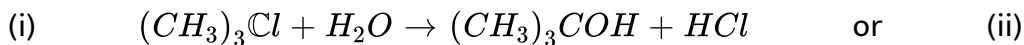
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259. Which  $S_N1$  reaction would you expect to take place more rapidly ?



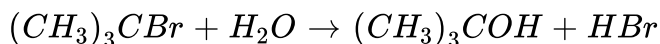
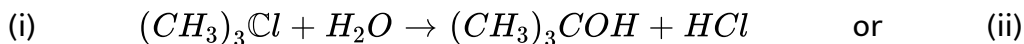
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260. Which  $S_N1$  reaction would you expect to take place more rapidly ?



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261. Which  $S_N1$  reaction would you expect to take place more rapidly ?



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**262.** Express 1662 in roman numbers.

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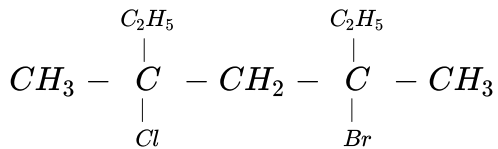
**263.** Hydrolysis of 2-bromo-3-methylbutane ( $2^\circ$ ) gives only 2-methyl-2-butanol ( $3^\circ$ ). Explain.

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**264.** Haloalkanes undergo nucleophilic substitution reactions while haloarenes undergo electrophilic substitution reactions. Explain.

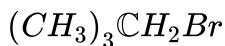
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265. Write IUPAC name of the following compound :



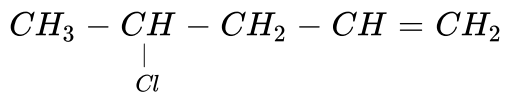
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266. Write IUPAC name of the following compound :



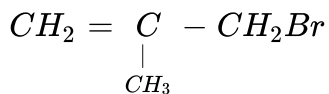
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267. Write IUPAC name of the following compound :



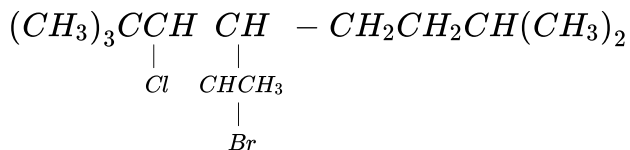
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268. Write IUPAC name of the following compound :



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269. Write IUPAC name of the following compound :



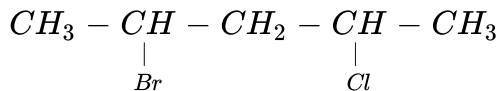
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270. Write IUPAC name of the following compound :



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271. Write the IUPAC name of the following compound:



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272. Write the structure of the following compound :

2-Chloro-3-methylpentane.

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273. Write the structure of the following compound :

1-Chloro-4-ethylcyclohexane.

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274. Write the structure of the following compound :

4-tert-Butyl-3-iodoheptane.



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275. Write the structure of the following compound :

1-4-Dibromobut-2-ene.



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276. Write the structure of the following compound :

1-Bromo-4-sec-butyl-2-methylbenzene.



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277. Draw the structures of all the eight structural isomers that have the molecular formula  $C_5H_{11}Br$ . Name each isomer according to IUPAC system and classify them as primary, secondary or tertiary bromide.



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278. Express 2360 in roman numbers.

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279. Write the structure of the mayor product and IUPAC name of the

following reaction :  $CH_3CH_2CH_2Cl + NaI \xrightarrow[\text{Heat}]{\text{Acetone}}$

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280. Write the structure of the mayor product and IUPAC name of the

following reaction :  $CH_3CH_2Cl + SbF_3 \xrightarrow{\text{Heat}}$

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281. Express 2323 in roman numbers.

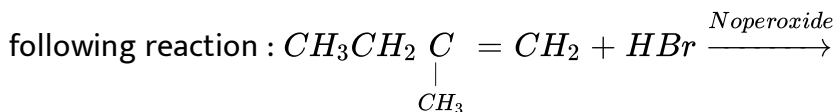
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282. Express 2330 in roman numbers.

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283. Write the structure of the mayor product and IUPAC name of the

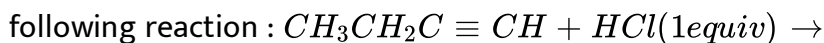


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284. Express 2325 in roman numbers.

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285. Write the structure of the mayor product and IUPAC name of the



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286. Express 2326 in roman numbers.

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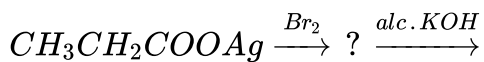
287. Express 2327 in roman numbers.

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288. Out of  $S_N1$  and  $S_N2$ , which reaction occurs with Racemisation.

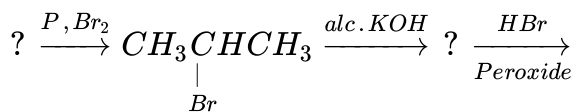
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289. Complete the following reaction (giving major product) :



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290. Complete the following reaction (giving major product) :



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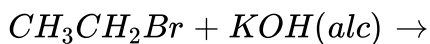
291. Express 2337 in roman numbers.

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292. Express 2328 in roman numbers.

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293. Complete the following reaction (giving major product) :



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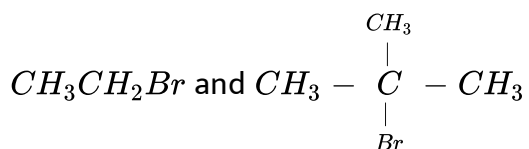
294. Express 2331 in roman numbers.

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295. Express 203 in roman numbers.

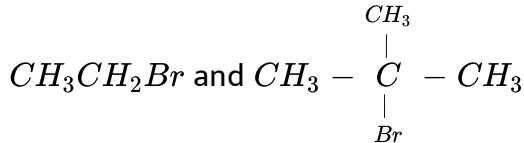
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296. In the following pairs of the halogen compounds, which would undergo  $S_N2$  faster ?



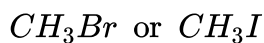
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297. Which one of the following pairs undergoes  $S_N1$  substitution reaction faster and why ?



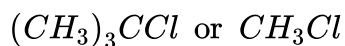
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**298.** Which compound of the following pairs will react faster in  $S_N2$  reaction with  $OH^-$  ?



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**299.** Which compound of the following pairs will react faster in  $S_N2$  reaction with  $OH^-$  ?



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**300.** Express 2333 in roman numbers.

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301. Express 2335 in roman numbers.

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302. Predict the order of reactivity of the following compound in dehydrohalogenation :

$CH_3CH(Br)CH_3$ ,  $CH_3CH_2CH_2Br$ ,  $(CH_3)_2CHCH_2Br$ ,  $(CH_3)_2CCH_2Br$

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303. A chloro derivative (A) on treatment with zinc copper couple gives a hydrocarbon (B) with five carbon atoms. When A is dissolved in ether and treated with sodium 2, 2, 5, 5- tetramethylhexane is formed. What is the formula of the compound A ?

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**304.** What products would you expect from the elimination of the following alkyl halides, which product will be major : 2-Bromo-2-methylbutane .

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**305.** Express 2336 in roman numbers.

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**306.** Although chlorine is an electron withdrawing group, yet it is ortho-, para-directing in electrophilic aromatic substitution reaction. Why?

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**307.** How would you convert the following: Prop-1-ene to 1-fluoropropane.

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**308.** How do you convert the following:

Chlorobenzene to 2-chlorotoluene.

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**309.** Write the main product when n-butyl chloride is treated with alcoholic KOH.

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**310.** Write the main products when 2, 4, 6-trinitrochlorobenzene is subjected to hydrolysis.

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**311.** Express 2376 in roman numbers.

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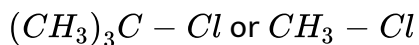


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312. Express 2377 in roman numbers.

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313. Which halogen compound in the following pairs will react faster in  $S_N2$  reactions.

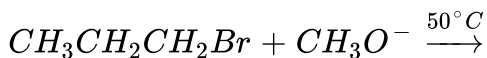


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314. Express 861 in roman numbers.

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315. Write the product or products of the following reaction:





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**316.** How will you carry out the following conversions in not more than two steps : Toluene to benzyl alcohol .



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**317.** How will you carry out the following conversions in not more than two steps : Ethanol to ethyl fluoride.



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**318.** How will you carry out the following conversions in not more than two steps : Benzene to biphenyl.



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**319.** How will you carry out the following conversions in not more than two steps : 1-Chlorobutane to n-octane.

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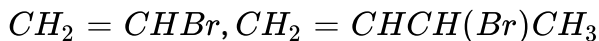
**320.** How will you carry out the following conversions in not more than two steps : Benzyl alcohol to phenylethanenitrile.

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**321.** How will you carry out the following conversions in not more than two steps : But-1-ene to But-2-ene.

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**322.** Arrange the following in order of their expected  $S_N1$  reactivity :  
 $CH_3CH_2(Br)$ ,  $CH_3CH(Br)CH_3$ ,

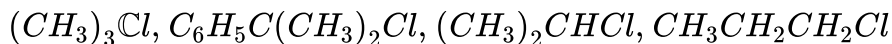


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323. Express 2383 in roman numbers.

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324. Arrange the following in order of their expected  $S_N1$  reactivity :



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325. An optically active compound having molecular formula  $C_7H_{15}Br$  reacts with KOH to give a racemic mixture of products. Write the mechanism involved for this reaction.

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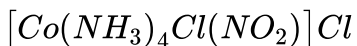
**326.** Propose mechanism of the reaction taking place when 2-Bromopentane is heated with (alc.) KOH to form alkenes.

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**327.** How will you convert the following : Isopropyl chloride to n-propyl chloride.

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**328.** Write the ionisation isomerism of following compound



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**329.** How will you convert the following : Chlorobenzene to benzoic acid .

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**330.** How will you convert the following : Methyl bromide to acetic acid.

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**331.** How will you convert the following : Propane to allyl chloride.

 [Watch Video Solution](#)

**332.** How will you convert the following : 1-Bromopropane to 2 - bromopropane.

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**333.** How will you convert the following : Propene to propyne.

 [Watch Video Solution](#)

**334.** How will you convert the following : Ethanol to but-1-yne.

 [Watch Video Solution](#)

**335.** How will you distinguish between the following (give one chemical test): Chlorobenzene and chlorocyclohexane.

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**336.** How will you distinguish between the following (give one chemical test): Chlorobenzene and benzyl chloride.

 [Watch Video Solution](#)

**337.** How will you distinguish between the following (give one chemical test): Ethyl chloride and vinyl chloride.

 [Watch Video Solution](#)

**338.** How will you distinguish between the following (give one chemical test): Chlorobenzene and n-hexylchloride.

 [Watch Video Solution](#)

**339.** How will you distinguish between the following (give one chemical test): Chloroethane and bromoethane.

 [Watch Video Solution](#)

**340.** How will you distinguish between the following (give one chemical test): 3-Bromopropene and 1-bromopropane.

 [Watch Video Solution](#)

**341.** Out of  $CH_3 - \underset{\underset{CH_3}{|}}{CH} - CH_2 - Cl$  and  $CH_3 - CH_2 - \underset{\underset{CH_3}{|}}{CH} - Cl$ , which is more reactive towards  $S_N1$  reaction and why?





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



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



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**344.** Why is chloroform stored in dark coloured bottles?



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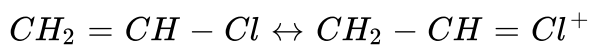
**345.** Haloarenes are insoluble in water but soluble in benzene. Explain.

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

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**347.** Which effect will the resonance have on the dipole moment of vinyl chloride ?



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**348.** Why is Vinyl chloride less reactive than ethyl chloride ?

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349. Why the use of chloroform as anesthetic is decreasing ?

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350. A hydrocarbon  $C_5H_{12}$  gives only one chlorination product. Identify the compound.

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351. An alkyl halide (A) on reaction with magnesium in dry ether followed by treatment with ethanol gave 2-methylbutane. Write all the structures of [A].

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352. Which of the following two compounds would react faster by  $S_N2$  path way : 1-bromobutane or 2-bromobutane and why ?



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**353.** Allyl chloride is more reactive than n-propyl chloride towards nucleophilic substitution reaction. Explain why ?



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**354.** Write the various possible isomers of  $C_7H_7Cl$  containing benzene ring. Which of these has weakest C-Cl bond.



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**355.** An alkyl halide with molecular formula  $C_4H_9Br$  is optically active. What is its structure ?



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356. Which out of the two : 2-cyclopentanol or 3-cyclopentanol has chiral centre.

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357. Which of the two:  $CH_3CH = CHCH_2Br$  or  $CH_3CHCH = CH_2$   
|  
Br  
is achiral and chiral.

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358. Allyl chloride is hydrolysed more readily than n-propyl chloride.

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359. What are enantiomers ? Draw the structures of the possible enantiomers of 3-methylpent-1-ene.

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**360.** Which will have a higher boiling point? 1-Chloro ethane or 2-methyl-2-chlorobutane . Give reasons.

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**361.** An acid having molecular formula  $C_3H_5O_2Br$  is optically active. What is its structure ?

 [Watch Video Solution](#)

**362.** Express 2382 in roman numbers.

 [Watch Video Solution](#)

**363.** Express 2386 in roman numbers.

 [Watch Video Solution](#)

364. Iodoform has antiseptic properties. Give one reason to support this.

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365. Primary alkyl halide  $C_4H_9Br$  (A) is reacted with alcoholic KOH to give compound (B). Compound (B) is reacted with HBr to give (C) which is an isomer of (A). When (A) is reacted with sodium metal, it gives compound (D)  $C_8H_{18}$  which is different from the compound when A-butyl bromide is reacted with sodium. Give the structural formula of (A) and write the equations for all the reactions.

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366. Optically active 2-iodobutane on treatment with NaI in acetone gives a product which does not show optical activity. Explain.

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**367.** Express 2385 in roman numbers.

 [Watch Video Solution](#)

**368.** Write the structures of the following compound : 1-Chloro-4-ethylcyclohexane.

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**369.** Write the structures of the following compound : 4-tert-Butyl-3-iodoheptan.

 [Watch Video Solution](#)

**370.** Express 2387 in roman numbers.

 [Watch Video Solution](#)



**371.** Express 2388 in roman numbers.

 [Watch Video Solution](#)

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

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**373.** Write structures of different dihalogen derivatives of propane.

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**374.** Express 2500 in roman numbers.

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**375.** Express 2505 in roman numbers.

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**376.** Express 2501 in roman numbers.

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**377.** Express 2502 in roman numbers.

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**378.** Arrange each set of compounds in order of increasing boiling points.

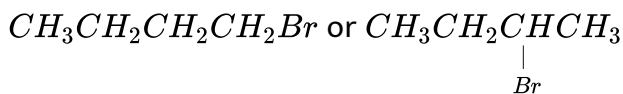
Bromomethane, Bromoform, Chloromethane, Dibromomcthane.

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379. Express 2503 in roman numbers.

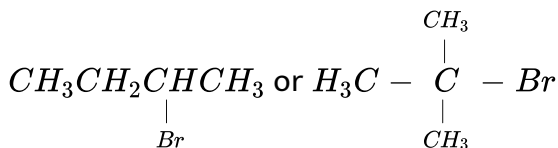
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380. Which alkyl halide from the following pairs would you expect to react more rapidly by an  $S_N2$  mechanism? Explain your answer.



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381. Which alkyl halide from the following pairs would you expect to react more rapidly by an  $S_N2$  mechanism? Explain your answer.



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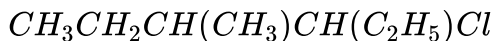
**382.** Express 2506 in roman numbers.

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**383.** Express 2507 in roman numbers.

 [Watch Video Solution](#)

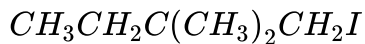
**384.** Name the following halides according to IUPAC system and classify them as alkyl, allyl, benzyl (primary, secondary, tertiary), vinyl or aryl halides :



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**385.** Name the following halides according to IUPAC system and classify them as alkyl, allyl, benzyl (primary, secondary, tertiary), vinyl or aryl

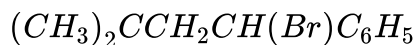
halides :



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**386.** Name the following halides according to IUPAC system and classify them as alkyl, allyl, benzyl (primary, secondary, tertiary), vinyl or aryl

halides :



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**387.** Express 2508 in roman numbers.

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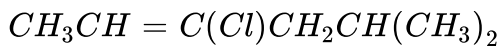
**388.** Express 2510 in roman numbers.

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389. Express 2511 in roman numbers.

 [Watch Video Solution](#)

390. Name the following halides according to IUPAC system and classify them as alkyl, allyl, benzyl (primary, secondary, tertiary), vinyl or aryl halides :



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391. Name the following halides according to IUPAC system and classify them as alkyl, allyl, benzyl (primary, secondary, tertiary), vinyl or aryl halides :



 [Watch Video Solution](#)

**392.** Name the following halides according to IUPAC system and classify them as alkyl, allyl, benzyl (primary, secondary, tertiary), vinyl or aryl halides :



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**393.** Express 2512 in roman numbers.

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**394.** Express 2513 in roman numbers.

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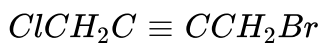
**395.** Express 2515 in roman numbers.

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396. Express 2516 in roman numbers.

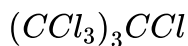
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397. Give the IUPAC name of the following compound:



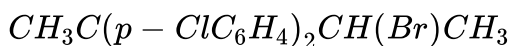
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398. Give the IUPAC name of the following compound:



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399. Write IUPAC name of the following compound :



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**400.** Express 1251 in roman numbers.

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**401.** Write the structure of the following organic halogen compound :

2-Chloro-3-methylpentane.

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**402.** Express 2518 in roman numbers.

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**403.** Write the structure of the following organic halogen compound :

1-Chloro-4-ethylcyclohexane.

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**404.** Express 2520 in roman numbers.

 [Watch Video Solution](#)

**405.** Express 2521 in roman numbers.

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**406.** Write the structure of the following organic halogen compound :

4-tert-Butyl-3-iodoheptane .

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**407.** Express 2522 in roman numbers.

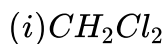
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**408.** Write the structure of the following organic halogen compound :

1, 4-Dibromobut-2-ene.

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**409.** Which one of the following has the highest dipole moment ?



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**410.** Hydrocarbon  $C_5H_{10}$  does not react with chlorine but gives a single monochloro compound,  $C_5H_9Cl$  in bright sunlight: Identify the hydrocarbon.

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411. Write the isomers of the compound having formula  $C_4H_9Br$ .

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412. Write the equations for the preparation of 1-iodobutane from  
1- butanol

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413. Express 203 in roman numbers.

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414. Write the equations for the preparation of 1-iodobutane from  
but -1- ene

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

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416. Which compound of the following pairs will react faster in  $S_N2$  reaction with  $OH^-$ ?

$CH_3Br$  or  $CH_3I$

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417. Express 2525 in roman numbers.

 [Watch Video Solution](#)

418. Express 1226 in roman numbers.

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**419.** Predict the alkenes that would be formed by the dehydrohalogenation of the following halides with sodium ethoxide and identify the major alkene : 2-Chloro-2-methylbutane.

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**420.** Predict the alkenes that would be formed by the dehydrohalogenation of the following halides with sodium ethoxide and identify the major alkene : 3-bromo-2,2,3-trimethylpentane

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**421.** How will you bring the following conversion?

Ethanol to but-1-yne .

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**422.** How will you bring the following conversion?

Ethane to bromoethene.

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**423.** How will you bring the following conversion?

Propene to 1-nitropropane.

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**424.** How will you bring the following conversion?

Toluene to benzyl alcohol.

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**425.** How will you bring the following conversion?

Propene to propyne.





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**426.** How will you bring the following conversion?

Ethanol to ethyl fluoride.



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**427.** How will you bring the following conversion?

Bromomethane to propanone.



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**428.** How will you bring the following conversion?

But-1-ene to but-2-ene.



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**429.** How will you bring the following conversion?

1-Chlorobutane to n-octane.

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**430.** How will you bring the following conversion?

Benzene to biphenyl.

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

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

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**433.** Explain why

Grignard reagents should be prepared under anhydrous conditions.

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**434.** Give the uses of Freon 12, DDT, Carbon tetrachloride and Iodoform.

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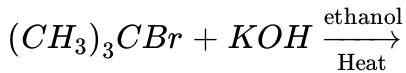
**435.** Write the structure of the mayor product and IUPAC name of the

following reaction :  $CH_3CH_2CH_2Cl + NaI \xrightarrow[\text{Heat}]{\text{Acetone}}$

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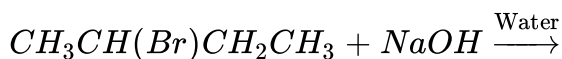
**436.** Write the structure of the major organic product in each of the

following reactions :



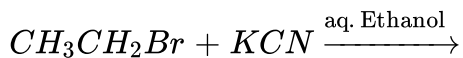
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**437.** Write the structure of the major organic product in each of the following reactions :



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**438.** Write the structure of the major organic product in each of the following reactions :



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**439.** Write the structure of the major organic product of the following reaction :  $C_6H_5ONa + C_2H_5Cl \rightarrow$

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440. Write the structure of the major product and IUPAC name of the following reaction :  $CH_3CH_2CH_2OH + SOCl_2 \rightarrow$

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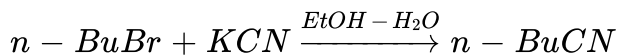
441. Write the structure of the major organic product of the following reaction :  $CH_3CH_2CH = CH_2 + HBr \xrightarrow{\text{Peroxide}}$

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442. What is carbogen?

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443. Explain the following reaction :



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444. Rearrange the compounds of each of the following sets in order of reactivity towards  $S_N^2$  displacement :

2-Bromo-2-methylbutane, 1- Bromopentane, 2- Bromopentane

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445. What is Maduna's mixture?

 [Watch Video Solution](#)

446. Complete the statement- Carbogen is also called-

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**447.** Carbogen is a mixture of-



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**448.** Maduna's mixture is a mixture of-



**Watch Video Solution**

**449.** Complete the statement- carbogen is made up of-



**Watch Video Solution**

**450.** Maduna's mixture is made up of-



**Watch Video Solution**

**451.** The mixture used for artificial respiration is called-

 [Watch Video Solution](#)

**452.** Carbogen is used for the treatment of-

 [Watch Video Solution](#)

**453.** Maduna's mixture is used for the treatment of-

 [Watch Video Solution](#)

**454.** How the following conversion can be carried out ?

Benzyl alcohol to 2-phenylethanoic acid.

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**455.** How the following conversion can be carried out ?

Ethanol to propanenitrile.

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**456.** Fill in the blanks- \_\_\_\_\_ is the mixture of oxygen and carbon dioxide.

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**457.** Fill in the blanks- \_\_\_\_\_ is used for artificial respiration.

 [Watch Video Solution](#)

**458.** How the following conversion can be carried out ?

2-Methyl-1-propene to 2-chloro-2-methylpropane.

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**459.** How the following conversion can be carried out ?

Ethyl chloride to propanoic acid .

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**460.** How the following conversion can be carried out ?

But-1-ene to n-butyliodide.

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**461.** How the following conversion can be carried out ?

2-Chloropropane to 1-propanol.

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**462.** Complete the following statement- Carbogen is-

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**463.** How the following conversion can be carried out ?

Chlorobenzene to p-nitrophenol.



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**464.** How the following conversion can be carried out ?

2-Bromopropane to 1-bromopropane.



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**465.** How the following conversion can be carried out ?

Chloroethane to butane.



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**466.** How the following conversion can be carried out ?

Benzene to diphenyl.

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**467.** How the following conversion can be carried out ?

tert-Butyl bromide to isobutylbromide.

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**468.** How the following conversion can be carried out ?

Aniline to phenylisocyanide.

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

major product. Explain.

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**470.** A primary alkyl halide (a)  $C_4H_9Br$  reacted with alcoholic KOH to give compound (b). Compound (b) reacted with HBr to give (c), which is an isomer of (a). When (a) was reacted with sodium metal it gave a compound (d),  $C_8H_{18}$  which was different than the compound when n-butyl bromide was reacted with sodium. Give the structural formula of (a) and write equations for all the reactions.

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**471.** What happens when n-butyl chloride is treated with alcoholic KOH?

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**472.** What happens when -

bromobenzene is treated with Mg in the presence of dry ether

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**473.** What happens when chlorobenzene is subjected to hydrolysis ?

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**474.** What happens when :

Ethyl chloride is treated with (aq) KOH.

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**475.** Methyl bromide is treated with sodium in the presence of dry ether.

 [Watch Video Solution](#)

**476.** What happens when methyl chloride is treated with KCN ?

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**477.** Aryl chlorides and bromides can be easily prepared by electrophilic substitution of arenes with chlorine and bromine respectively in the presence of Lewis acid catalysts. But why does preparation of aryl iodides requires presence of an oxidising agent ?

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**478.** Out of o-and p-dibromobenzene which one has higher melting point and why ?

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479. Which of the compounds will react faster in  $S_N1$  reaction with the  $^-(OH)$  ion?  $CH_3 - CH_2 - Cl$  or  $C_6H_5 - CH_2 - Cl$

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480. Iodoform has antiseptic properties. Give one reason to support this.

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481. Complete the following statement- Maduna's mixture is-

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482. Discuss the role of Lewis acids in the preparation of aryl bromides and chlorides in the dark.

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**483.** Explain the following statement- Carbogen is used to stimulate breathing.

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**484.** Why solubility of Haloalkanes in water is very low ?

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**485.** Classify the following compound as primary, secondary and tertiary halides.

1-Bromobut-2-ene.

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**486.** Classify the following compound as primary, secondary and tertiary halides.



4-Bromopent-2-ene.

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**487.** Classify the following compound as primary, secondary and tertiary halides.

2-Bromo-2-methylpropane.

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**488.** Compound 'A' with molecular formula  $C_4H_9Br$  is treated with aq. KOH solution. The rate of this reaction depends upon the concentration of the compound 'A' only. When another optically active isomer 'B' of this compound was treated with aq. KOH solution, the rate of reaction was found to be dependent on concentration of compound and KOH both. Write down the structural formula of both compounds 'A' and 'B'.

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**489.** Compound 'A' with molecular formula  $C_4H_9Br$  is treated with aq. KOH solution. The rate of this reaction depends upon the concentration of the compound 'A' only. When another optically active isomer 'B' of this compound was treated with aq. KOH solution, the rate of reaction was found to be dependent on concentration of compound and KOH both. Out of these two compounds, which one will be converted to the product with inverted configuration.

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**490.** An oxidizer is used along with aluminium powder to form an explosive. Name that oxidizer and explosive?

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**491.** Identify the products A and B formed in the following reaction :



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**492.** Write down the structure and IUPAC name for neo-pentylbromide.

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**493.** A hydrocarbon of molecular mass  $72 \text{ g mol}^{-1}$  gives a single monochloro derivative and two dichloro derivatives on Photo chlorination. Give the structure of the hydrocarbon.

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**494.** Name the alkene which will yield 1-chloro-1- methylcyclohexane by its reaction with HCl. Write the reactions involved.

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**495.** Which of the following haloalkanes reacts with aqueous KOH most easily ? Explain giving reason. (i) 1-Bromobutane (ii) 2-Bromobutane (iii) 2-Bromo-2-methylpropane (iv) 2-Chlorobutane

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**496.** Why can aryl halides not be prepared by reaction of phenol with HCl in the presence of  $ZnCl_2$  ?

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**497.** Express 2527 in roman numbers.

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**498.** Allyl chloride is hydrolysed more readily than n-propyl chloride.

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

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**500.** How do polar solvents help in the first step in  $S_N1$  mechanism?

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**501.** Write a test to detect the presence of double bond in a molecule.

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**502.** Diphenyls are potential threat to the environment. How are these produced from arylhalides?

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**503.** Express 2528 in roman numbers.

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**504.** Elimination reactions (especially  $\beta$ -elimination) are as common as the nucleophilic substitution reaction in case of alkyl halides. Specify the reagents used in both cases.

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**505.** Express 2530 in roman numbers.

 [Watch Video Solution](#)

**506.** Express 2531 in roman numbers.

 [Watch Video Solution](#)

**507.** Predict the major product formed when HCl is added to isobutylene.

Explain the mechanism involved.

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**508.** Discuss the nature of C-X bond in the haloarenes.

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**509.** How can you obtain iodoethane from ethanol when no other iodine containing reagent except NaI is available in the laboratory ?

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**510.** Cyanide ion acts as an ambident nucleophile. From which end it acts as a stronger nucleophile in aqueous medium? Give reason for your answer.

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**511.** Why alkyl halides are generally not prepared in the laboratory by free radical halogenation of alkanes?

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**512.** Propose reaction for the preparation of : (i) allyl iodide and (ii) allyl fluoride from prop-1-ene.

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**513.** (R)-2-Bromooctane reacts with hydrogen sulphide ( $HS^-$ ) ion and gives (S)-2-octanethiol with inversion of configuration at the stereocentre.

Can we plan to get (R)-2-octanethiol from (R)-2-bromooctane?

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**514.** RCl is hydrolysed to ROH slowly but the reaction is rapid if a catalytic amount of KI is added to the reaction mixture. Explain.

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**515.** Optically active 2-iodobutane on treatment with NaI in acetone gives a product which does not show optical activity. Explain.

 [Watch Video Solution](#)

**516.** Express 2586 in roman numbers.

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**517.** A dihalogen derivative (A) of a hydrocarbon having two carbon atoms reacts with alcoholic potash and forms another hydrocarbon which gives a red precipitate with ammoniacal solution of cuprous chloride.

Compound 'A' gives an aldehyde when treated with aqueous KOH. Write down the name and formula of the compound.

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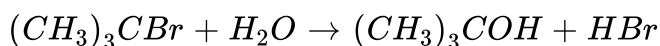
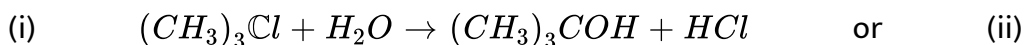
518. An organic compound  $C_8H_{18}$  on monochlorination gives a single monochloride. Write the structure of the hydrocarbon.

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519. The following reaction gives two products. Write the structures of the products.  $C_6H_5CH_2CHClC_6H_5 \xrightarrow[\text{Heat}]{\text{alc. KOH}}$

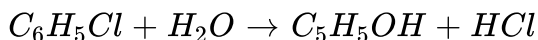
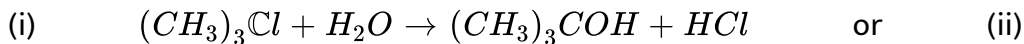
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520. Which  $S_N1$  reaction would you expect to take place more rapidly ?



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521. Which  $S_N1$  reaction would you expect to take place more rapidly ?



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522. Quick lime is mixed with a solution which is used as fungicide. Name that solution used in the mixture and the name of that fungicide?

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523. A mixture of two gases used in artificial respiration. Name those gases?

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524. Hydrolysis of 2-bromo-3-methylbutane ( $2^\circ$ ) gives only 2-methyl-2-butanol ( $3^\circ$ ). Explain.

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525. Haloalkanes undergo nucleophilic substitution reactions while haloarenes undergo electrophilic substitution reactions. Explain.

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## EXERCISE

1. Give the structural formula and IUPAC names of (a) iso-butyl iodide (b) tert-amyl bromide (c) sec-butyl bromide.

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2. Write the structure of the following compound and identify them as  $1^\circ$ ,  $2^\circ$  or  $3^\circ$  halides.

1-Bromo-2-methylpropane.

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3. Write the structure of the following compound and identify them as  $1^\circ$ ,  $2^\circ$  or  $3^\circ$  halides.

2-Chloro-2-methylpropane.

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4. Write the structure of the following compound and identify them as  $1^\circ$ ,  $2^\circ$  or  $3^\circ$  halides.

2-Bromo-3-methylbutane.

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5. Write the structure of the following compound and identify them as

$1^\circ$ ,  $2^\circ$  or  $3^\circ$  halides.

3-Bromopentane.

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6. Write the structure of the following compound and identify them as

$1^\circ$ ,  $2^\circ$  or  $3^\circ$  halides.

2-Bromo-2-methylbutane.

 [Watch Video Solution](#)

7. Write the structure of the following compound and identify them as

$1^\circ$ ,  $2^\circ$  or  $3^\circ$  halides.

Neopentyl chloride.

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8. Write the structure of the following dihaloalkanes and identify them as gem or vicinal, if any : 2, 3-Dichlorobutane.

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9. Write the structure of the following dihaloalkanes and identify them as gem or vicinal, if any : 2, 2-Dichlorobutane .

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10. Write the structure of the following dihaloalkanes and identify them as gem or vicinal, if any : 1, 4-Dichlorobutane.

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11. Write the structure of the following dihaloalkanes and identify them as gem or vicinal, if any : 1, 2-Dichlorobutane.





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12. Write the structure of the following dihaloalkanes and identify them as gem or vicinal, if any : 1, 3-Dichloro-2-methylpropane.



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13. Write all the possible isomers of compound  $C_4H_9Br$  and give their IUPAC names.



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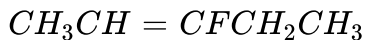
14. Classify the following as alkyl, vinyl, allyl or aryl halides :  
 $H_2C = CHCH_2I$



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15. Classify the following as alkyl, vinyl, allyl or aryl halides :



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16. Dutch metal has the following composition-

- A. Al and Mg
- B. Mn and Fe
- C. Cu and Ni
- D. Cu and Zn

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17. Duralumin has the following composition

- A. Cu, Sn, P

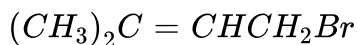
B. Cu, Sn, Zn

C. Al and Mg

D. Al, Mg and Cu

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18. Classify the following as alkyl, vinyl, allyl or aryl halides :



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19. Classify the following as alkyl, vinyl, allyl or aryl halides :  $C_6H_5Br$

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20. Alkane has the following composition-

A. Ni, Fe, Cr, Mn

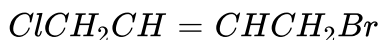
B. Al, Cu, Fe

C. Fe, Al, Ni, Co

D. None of the above

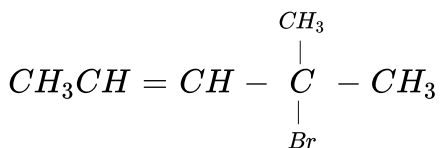
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21. Write IUPAC name of the following compound :



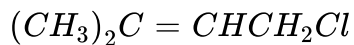
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22. Write IUPAC name of the following compound :



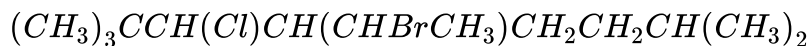
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23. Write IUPAC name of the following compound :



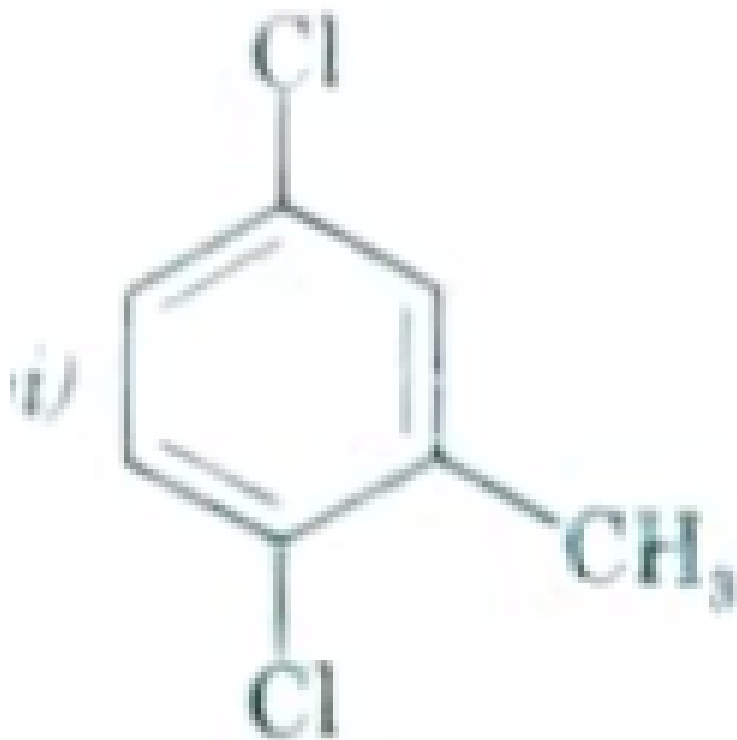
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24. Write IUPAC name of the following compound :



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25. Write IUPAC name of the following compound :

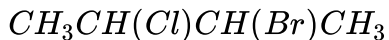


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26. Write IUPAC name of the following compound :  $CH_3 - \overset{CH_3}{\underset{CH_3}{|C}} - Cl$

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27. Write IUPAC name of the following compound :



 [Watch Video Solution](#)

28. Write IUPAC name of the following compound :  $CHF_2CBrClF$

 [Watch Video Solution](#)

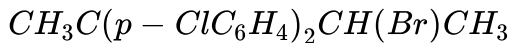
29. Write IUPAC name of the following compound :  $ClCH_2C = CCH_2Br$

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30. Write IUPAC name of the following compound :  $(CCl_3)_3CCl$

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31. Write IUPAC name of the following compound :



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32. Express 1637 in roman numbers.

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33. Write IUPAC name of the following compound :



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34. The metals used in the formation of bell metal are-

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35. Express 1613 in roman numbers.

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36. Express 1610 in roman numbers.

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37. Write the oxidation number of central atom in  $[Mn(NH_3)_6]^{+2}$

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38. Write the iupac name  $(CH_3)_3CBr$

 [Watch Video Solution](#)

39. Write the iupac name:  $CH_3\overset{Br}{\underset{|}{CH}}CH_2CH_3$





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40. Write the iupac name of the compound :  $CH_3CH_2CH_2CH_2Br$



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41. Chromium steel has the following composition-

- A. Mn and Fe
- B. Fe, Co, C
- C. Cr, C and Fe
- D. Ni, C, Al



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42. What metals are used for the formation of bronze?

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

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44. Which of the following alcohol will be most reactive towards Lucas Reagent ?

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45. Name the reagents used to convert 1-Chloropropane to 1-nitropropane. Give chemical reactions.

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46. The metals used for the formation of Artificial gold are-

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47. Name the reagents used to convert Bromoethane to diethyl ether.

Give chemical reactions.

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48. Write the iupac name of the following :  $[Co(en)_2(H_2O)_2]^{+3}$

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49. Name the reagents used to convert Bromoethane to diethyl ether.

Give chemical reactions.

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50. Select the compound in the following pairs that can be converted to corresponding alkyl bromide more rapidly on which treated with hydrogen bromide : 1-butanol or 2-butanol .

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51. Select the compound in the following pairs that can be converted to corresponding alkyl bromide more rapidly on which treated with hydrogen bromide : 2-methyl-1-butanol or 2-butanol .

 [Watch Video Solution](#)

52. Select the compound in the following pairs that can be converted to corresponding alkyl bromide more rapidly on which treated with hydrogen bromide : 2-methyl-1-butanol or 2-butanol .

 [Watch Video Solution](#)

53. Write the iupac name of the following :  $[Ni(NH_3)_5H_2O]Cl_2$

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54. Predict the alkenes that would be formed by the dehydrohalogenation of the following halides with sodium ethoxide and identify the major alkene : 2-Chloro-2-methylbutane.

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55. Write the iupac name of the following :  $[Co(NH_3)_6]^{+2}$

 [Watch Video Solution](#)

56. Predict the alkenes that would be formed by the dehydrohalogenation of the following halides with sodium ethoxide and identify the major alkene : 3-bromo-2,2,3-trimethylpentane

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57. Predict the alkenes that would be formed by the dehydrohalogenation of the following halides with sodium ethoxide and identify the major alkene : 1-Bromo-1-methylcyclohexane.

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58. Write the iupac name of the following :  $[Co(NH_3)_3(NO_2)_3]$

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59. Write the iupac name of the following :  $[Ni(NH_3)_6]^{+2}$

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60. Write the iupac name of the following :  $[Co(NH_3)_5H_2O]^{+2}$

A.

B.

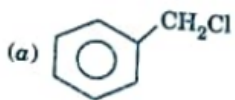
C.

D.

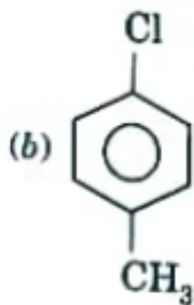
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61. Which of the following will be least reactive towards nucleophilic substitution reaction ?

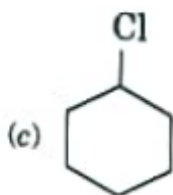
A.



B.



C.



D.  $C_2H_5Cl$

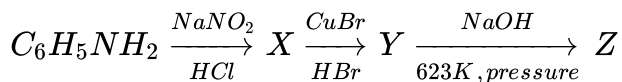
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62. Write the possible isomers of the aromatic compound having molecular formula  $C_7H_7Cl$ . Which of these will have weakest C-Cl bond ?

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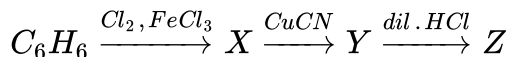


63. Identify X, Y and Z in the following reactions :



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64. Identify X, Y and Z in the following reactions :



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65. Write the iupac name of the following :  $K_3[Fe(CN)_4Cl_2]$

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66. Write the iupac name of the following :  $[Cu(CN)_4]^{-3}$

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67. Give reagent, inorganic or organic needed to convert benzyl bromide into benzyl ethyl ether.

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68. Write the iupac name of the following :  $K_3[Co(CN)_5F]$

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69. Give reagent, inorganic or organic needed to convert benzyl bromide into benzyl cyanide.

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70. Write the iupac name of the following :  $K_4[Fe(CN)_6]$

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71. Give reagent, inorganic or organic needed to convert benzyl bromide into (nitromethyl) benzene.

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72. Write the iupac name of the following :  $K_2[NiCl_4]$

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73. How are nitrochlorobenzene and chlorobenzene sulphonic acid are prepared from chlorobenzene ?

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74. Write the iupac name of the following :  $K_2[Ni(CN)_4]$

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75. In the following pairs of compounds, which will give iodoform test ?

Ethyl alcohol and isopropyl alcohol.

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76. Write the iupac name of the following :  $K_3[Fe(C_2O_4)_3]$

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77. Write the iupac name of the following :  $K_2[PtCl_4]$

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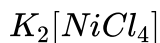
78. Write the iupac name of the following :  $K_2[PtF_4]$

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79. Name the product obtained when chloroform reacts with (a) nitric acid (b) silver powder (c) aniline in the presence of alcohol KOH (d) acetone.

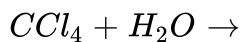
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80. Write the oxidation number of central atom in the following :



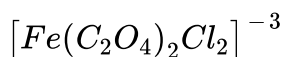
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81. Complete the following reaction :



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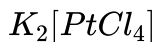
82. Write the oxidation number of central atom in the following :





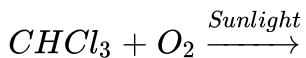
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83. Write the oxidation number of central atom in the following :



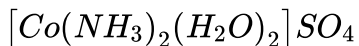
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84. Complete the following reaction :



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85. Write the oxidation number of central atom in the following :



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

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

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88. True or False :  $CH_3CH_2I$  is more reactive than  $CH_3CH_2Cl$  towards KCN.

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89. Carbon tetrachloride is inflammable.

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90. True of False :  $CH_3CH = CHCl$  is more reactive than  $ClCH_2CH = CH_2$ .

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91. 2,3,4-trichloropentane has three asymmetric carbon atoms.

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

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93. True of False : Addition of  $BrCl_3$  to propene in the presence of peroxides gives 3-bromo-1, 1, 1-trichloro-2-methylpropane.



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94. True or False : Iodide ion is a better nucleophile than bromide ion.

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95. Chlorobenzene gives a white precipitate with alcoholic silver nitrate solution.

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96. True or False : 3, 3-Dimethylbut-1-ene reacts with HI to form 2-iodo-3,3-dimethylbutane and 2-iodo-2, 3-dimethylbutane.

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97. True or False : Bromoethane reacts with silver nitrite to form ethyl nitrite.

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98. 1,1-Dichloroethane reacts with aqueous KOH to give ethanol.

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99. True or False : Thioethers are obtained by reacting alkyl halides with sodium hydrosulphide.

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100. Boiling point of iodobenzene is more than that of bromobenzene.

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101. Complete the missing blanks : Isobutyl bromide is an example of..... alkyl halide.

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102. When alkyl halides are treated with  $Ag_2O$  they give

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103. Hydrolysis of 2-bromo-3-methylbutane gives ..... the major product.

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104. Write the oxidation number of central atom in the following compound :  $[Co(NH_3)_3(NO_2)_3]$

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105. Express 1658 in roman numbers.

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106. Chlorobenzene on reduction with Ni/Al alloy and alcohol gives .....

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107. Write the oxidation number of central atom in the following compound :  $[Co(ONO)(NH_3)_5]SO_4$

 [Watch Video Solution](#)

108. Write the oxidation number of central atom in the following compound :  $K_3[Cr(C_2O_4)_3]$

 [Watch Video Solution](#)

109. Write the oxidation number of central atom in the following compound :  $K[Ag(CN)_2]$

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110. With potassium cyanides, alkyl halides give..... while with silver cyanide, they give .....

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111. Write the oxidation number of central atom in the following compound :  $[Cu(H_2O)_2(NH_3)_4]SO_4$

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112. Write the oxidation number of central atom in the following compound :  $[PtCl(NO_2)(NH_3)_4]SO_4$



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113. Write the oxidation number of central atom in the following compound :  $K_2[HgCl_4]$

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114. Write the oxidation number of central atom in the following compound :  $[CoCl_2(NO_2)(NH_3)_3]$

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115. Chlorobenzene + Sodium + Methyl chloride  $\rightarrow$  .....+ 2NaCl.

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116. Write the oxidation number of central atom in the following compound :  $[CrCl_2(H_2O)_4]NO_3$

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117. Express 1660 in roman numbers.

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118. Write the oxidation number of central atom in the following compound :  $K[PtCl_3(NH_3)]$

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119. Write the oxidation number of central atom in the following compound :  $Na[Au(CN)_2]$

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120. Write the oxidation number of central atom in the following compound :  $K_3[Fe(CN)_5CO]$

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121. Choose the correct alternative : Reaction of alkyl halide with potassium sulphite gives thioethers / thioalcohols.

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122. Boiling point of tert-butyl bromide is less/more than that of n-butylbromide.

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123. Aryl bromides can be prepared by reacting silver aromatic acids with  $Br_2$  in Carbon tetrachloride. This reaction is Hunsdiecker reaction/ Balz-Schiemann reaction.

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

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125. Dipole moment of o-dichlorobenzene is less/more than that of m-dichlorobenzene.

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126.  $S_N1/S_N2$  proceeds through the formation of a carbocation .

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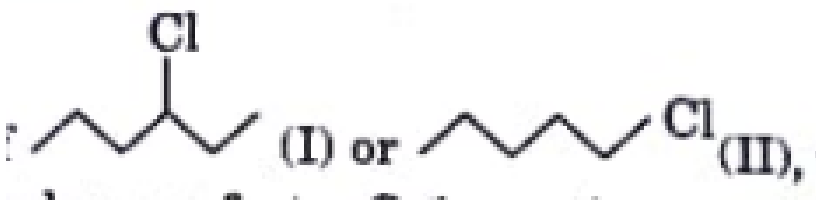
127. CHBrClF has chiral/achiral carbon atom.

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128.  $S_N2$  reaction occurs with inversion of configuration/ racemisation.

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129. Out of



the

compound I/II undergoes faster  $S_N1$  reaction.

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130. Iodobenzene when heated with copper powder gives toluene/diphenyl .

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131. Write the oxidation number of central atom in the following compound :  $K_4[Ni(CN)_4]$

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132. Write the oxidation number of central atom in the following compound :  $[Cr(CO)_5(PPh_3)]$

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133. How will you obtain 1-bromopropane from propene ?

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134. Draw the structure of 2-chloro-3-methylpentane

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135. Give one chemical test to distinguish between  $C_2H_5Br$  and  $C_6H_5Br$

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136. Express 1661 in roman numbers.

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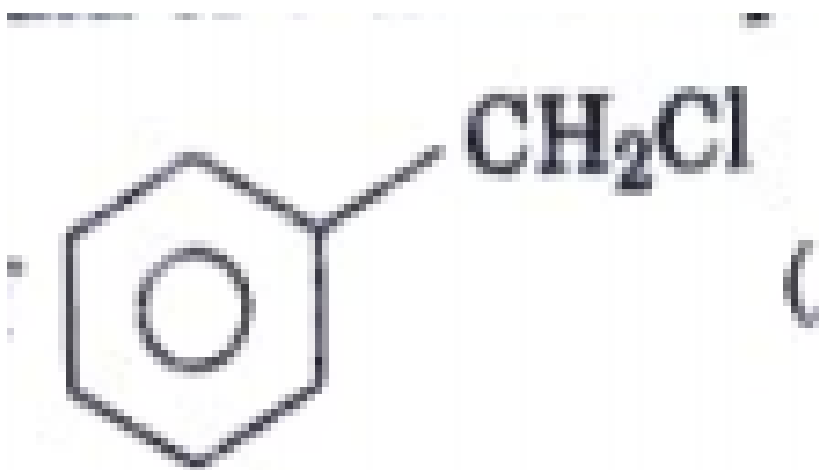
137. Write chemical reactions for the preparation of chloroform in the laboratory.

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138. Write the structural formula of 4-chloro-2-pentene.

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139. Write the IUPAC name of



[▶ Watch Video Solution](#)

140. Out of o-dichlorobenzene and p-dichloro-benzene, which has higher melting point and why ?



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141. How does iodobenzene react with copper powder in a sealed tube ?

What is the name of reaction ?



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142. Arrange the following in the order of their increasing reactivity in

nucleophilic substitution reactions :  $CH_3F$ ,  $CH_3I$ ,  $CH_3Br$ ,  $CH_3Cl$



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143. A solution of KOH hydrolyses  $CH_3CHClCH_2CH_3$  and

$CH_3CH_2CH_2CH_2Cl$ . Which one of these is more easily hydrolysed ?

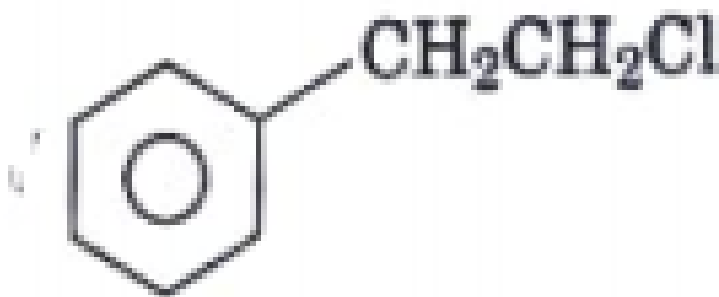


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144. How does chlorobenzene react with sodium in the presence of ether ?  
What is the name of reaction ?

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145. Write the IUPAC name of



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146. Which of the following is most reactive towards  $S_N2$  reaction?

$\text{CH}_3\text{Br}$ ,  $(\text{CH}_3)_2\text{CHBr}$ ,  $(\text{CH}_3)_3\text{CBr}$

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147. Explain why p-dichlorobenzenes have higher melting points and lower solubilities than that of their o- and m-isomers?

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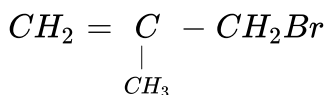
148.  $H_3C - Br + AgF \rightarrow H_3C - F + AgBr$ . Name the reaction.

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149. Write the IUPAC name of the following compound :  $(CH_3)_3CCH_2Br$

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150. Write IUPAC name of the following compound :





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151. Write the IUPAC name of  $CH_3 - \underset{\substack{| \\ Cl}}{CH} - CH_2 - CH = CH_2$ .

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152. Express 2011 in roman numbers.

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153. Write the IUPAC name of  $CH_3CH = CH - \underset{\substack{CH_3 \\ | \\ Br}}{C} - CH_3$ .

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154. Write the IUPAC name of  $(CH_3)_2CHCH(Cl)CH_3$ .

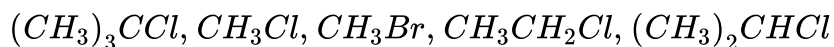
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155. Which compound in the following pair undergoes faster  $S_N1$  reaction ?



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156. Arrange the following halides in order of increasing  $S_N2$  reactivity :

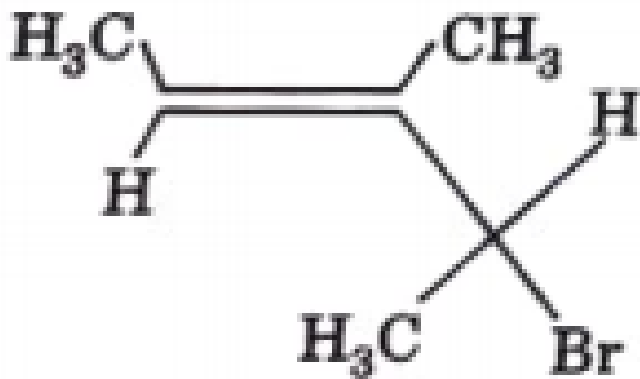


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157. Which would undergo  $S_N2$  reaction faster in the following pair and why?



161. Give the IUPAC name of the following compound:

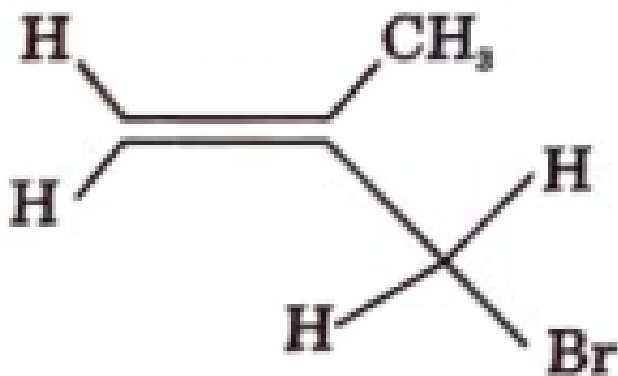


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162. Express 1675 in roman numbers.

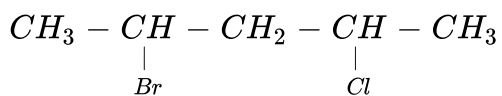
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163. Write the IUPAC name of the following:



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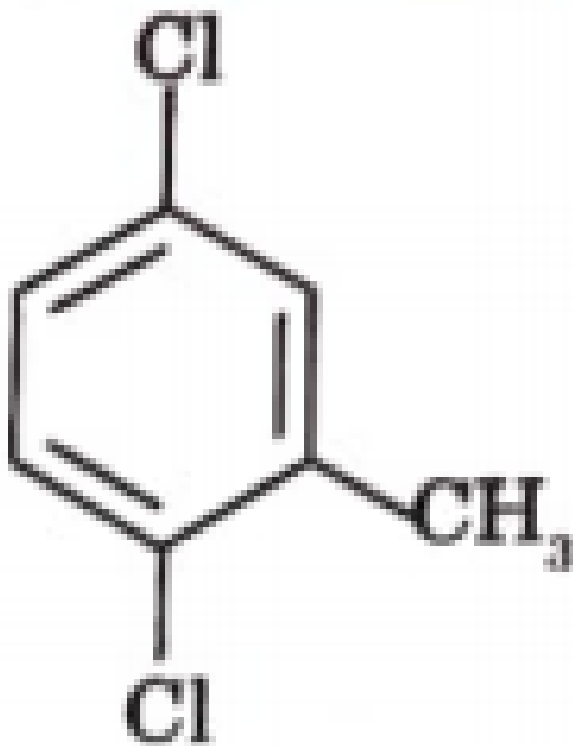
164. Write the IUPAC name of the following compound:



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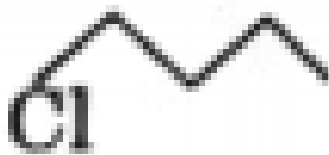
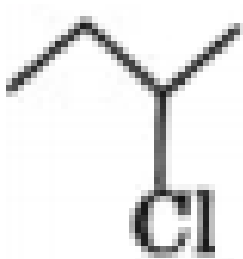
165. Write the IUPAC name of the following compound :

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166. Identify the chiral molecule in the following pair:



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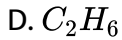
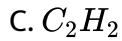
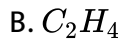
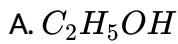
167. Express 1663 in roman numbers.

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168. Express 1665 in roman numbers.

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169.  $C_2H_5Cl$  on heating with alcoholic KOH will produce



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170. Express 1666 in roman numbers.

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171. Express 1667 in roman numbers.

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172. Express 1668 in roman numbers.



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173. The chiral compound is

- A. 3-chloropentane
- B. Propene
- C. 2-chloropropane
- D. 2-chlorobutane

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174. Which of the following has highest dipole moment in the following ?

- A.  $CH_3F$
- B.  $CH_3Cl$
- C.  $Cl_4$

D.  $CH_3I$

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175. Which of the following is not a polyhalogen compound?

A. Chloroform

B. Freon

C. Carbon tetrachloride

D. Chlorobenzene

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176. How is ethyl bromide converted into ethanol ?

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177. How is ethyl bromide converted into ethyl acetate ?

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178. How is ethyl bromide converted into diethyl amine?

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179. How is ethyl bromide converted into propanoic acid ?

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180. How will you convert : n-propyl bromide to iso-propyl bromide ?

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181. How will you convert : 1-bromopropane into propene?



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182. How will you convert : 2-propanol into 1-bromopropane?



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183. How will you convert : 2-chlorobutane into butanol ?



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184. How will you distinguish between Vinyl chloride and ethyl chloride ?



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185. Express 1670 in roman numbers.



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186. Express 1671 in roman numbers.

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187. Why does electrophilic substitution take place at ortho and para positions in haloarenes ?

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188. Complete the following reaction:  $CH_3Br \xrightarrow{KCN} A \xrightarrow{Na, C_2H_5OH} B$ .

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189. Express 1672 in roman numbers.

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**190.** How will you distinguish between the following (give one chemical test): Chlorobenzene and benzyl chloride.

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**191.** Express 1673 in roman numbers.

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**192.** How are the following conversions accomplished ? Write reaction only.

Aniline into chlorobenzene

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**193.** Why is chloroform stored in dark coloured bottles ?

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194. Aryl halide are less reactive than alkyl halides towards nucleophilic substitution reactions. Why ?

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195. Which compound of the following pairs will react faster in  $S_N2$  reaction with  $OH^-$  ?

$CH_3Br$  or  $CH_3I$

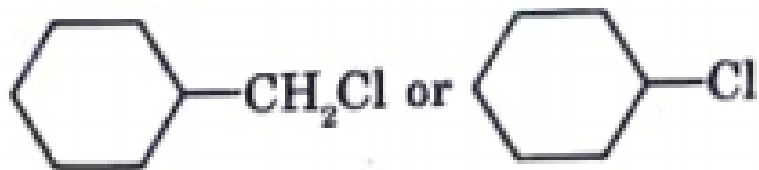
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196. Which halogen compound in the following pairs will react faster in  $S_N2$  reactions.

$(CH_3)_3C - Cl$  or  $CH_3 - Cl$

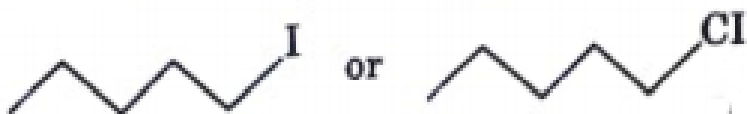
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197. Which one in the following pairs of substances undergo  $S_N2$  reaction faster and why?



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198. Which one in the following pairs of substances undergo  $S_N2$  reaction faster and why?



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199. State one use each of DDT and iodoform.

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**200.** Which compound in the following couples will react faster in  $S_N2$  displacement and why?

1-Bromopentane or 2-bromopentane.

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**201.** Which compound in the following couples will react faster in  $S_N2$  displacement and why?

1-Bromo-2-methylbutane or 2-bromo-2-methyl-butane.

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**202.** Express 1676 in roman numbers.

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**203.** Explain why

Grignard reagents should be prepared under anhydrous conditions.

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

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**205.** Express 1677 in roman numbers.

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**206.** What are enantiomers ? Give an example.

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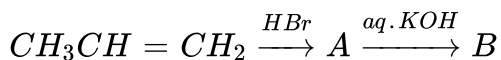
207. Express 1678 in roman numbers.

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208. Although chlorine is an electron withdrawing group, yet it is ortho-, para-directing in electrophilic aromatic substitution reaction. Why?

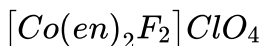
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209. Identify A and B



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210. Write the oxidation number of central atom of following compound :



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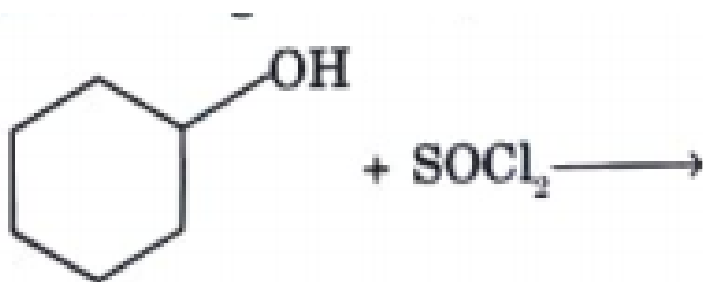
211. An alkyl chloride (X) reacts with magnesium metal in the presence of dry ether followed by treatment of ethanol gives propane. Write the structure of alkyl chloride (X).

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212. How are nitrochlorobenzene and chlorobenzene sulphonic acid are prepared from chlorobenzene ?

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213. Draw the structure of major monohalo products of the following reaction :





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214. Express 1680 in roman numbers.



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215. Why does p-dichlorobenzene has a higher m.p. than its o- and p- isomers ?



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216. Express 1681 in roman numbers.



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217. Express 1682 in roman numbers.



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218. what is substitution reaction?

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219. Most important chemical reactions of haloalkanes are their substitution reactions. Arrange the four isomeric bromobutanes in the increasing order of their reactivity towards  $S_N1$  reaction.

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220. Express 1683 in roman numbers.

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221. Express 1685 in roman numbers.

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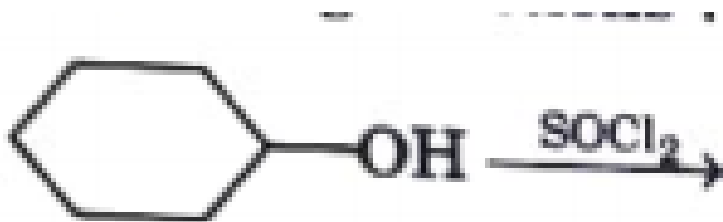
222. Out of  $S_N1$  and  $S_N2$ , which reaction occurs with Inversion of configuration.

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223. Out of  $S_N1$  and  $S_N2$ , which reaction occurs with Racemisation.

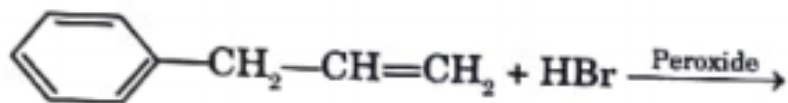
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224. Draw the structure of major monohalo product of the following reaction:



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225. Draw the structure of major monohalo product of the following reaction:



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226. What is the condition to be satisfied for a compound to be chiral ?

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227. Under what conditions, 2-methylpropene can be converted into isobutyl bromide (1-bromo-2-methylpropane) by hydrogen bromide ?

Write the correct reaction involved.

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228. Express 1686 in roman numbers.

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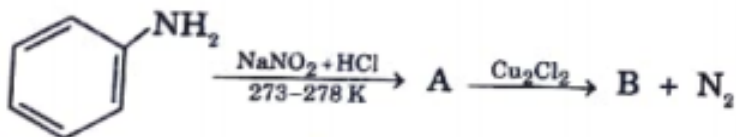
229. Express 1700 in roman numbers.

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230. Express 1701 in roman numbers.

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231.



Write the formulae of A and B in the above reaction.

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**232.** Express 1702 in roman numbers.

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**233.** How will you convert chloroethane into butane ?

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**234.** Haloarenes are insoluble in water but soluble in benzene. Explain.

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**235.** What are ambident nucleophiles? Explain with an example ?

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236. How will you convert ethyl bromide to diethyl ether .

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237. What are freons ?

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238. Complete the reaction:  $CH_3CH_2Br + KOH(alc.) \rightarrow$

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239. Why the use of chloroform as anesthetic is decreasing ?

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240. Express 1703 in roman numbers.



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241. How will you convert the following: Propene into isopropyl bromide?



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242. Express 1705 in roman numbers.



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243. Express 1706 in roman numbers.



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244. Explain the following reaction :

$\beta$ -Elimination reaction.



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245. Discuss uses of dimensional equation with suitable examples.

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246. Write the equations for the reaction of chlorobenzene with the following:  $CH_3Cl$  and anhyd.  $AlCl_3$

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247. Write the equations for the reaction of chlorobenzene with the following: *conc.*  $H_2SO_4 + Heat$

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248. Alkyl halides react with  $AgNO_2$  to give  $R - NO_2$  not  $R-ONO$ . Why?

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

 [Watch Video Solution](#)

250. What happens when ethyl bromide reacts with  $AgNO_2$  ?

 [Watch Video Solution](#)

251. What happens when an ethyl bromide reacts with :

Ag CN (alc.) ?

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252. Why does p-dichlorobenzene has a higher m.p. than its o- and p-isomers ?

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**253.** Haloalkanes react with potassium cyanide (KCN) to give alkyl cyanide, but gives alkyl isocyanide with silver cyanide (Ag CN).

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**254.** Why are haloarenes more stable than haloalkanes ?

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**255.** Give reasons: n-Butyl bromide has higher boiling point than t-butyl bromide.

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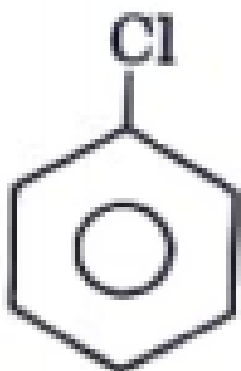
**256.** Define: Racemic Mixture.

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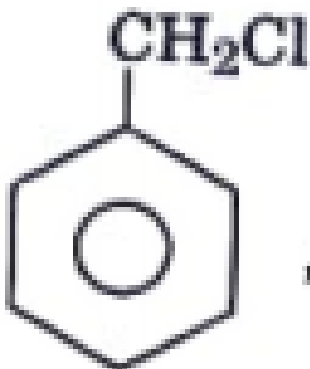
257. The presence of electron withdrawing group increases the reactivity of haloarenes towards nucleophilic substitution reaction. Explain.

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258. In



and



, identify the

compound which will undergo  $S_N1$  reaction faster and why?

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259. Discuss how coin metal is formed?

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260. Express 1766 in roman numbers.

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261. Explain Wurtz reaction with suitable example.

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262. In the following halogen compounds, which one will readily undergo

$S_N2$  reaction:  $CH_3CH_2 - Cl$ ,  $(CH_3)_3C - Cl$

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263. Complete the following reaction:  $CH_3Br + C_2H_5ONa \rightarrow$

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**264.** Aryl halides are less reactive in nucleophilic substitution reactions.

Write any two reasons for less reactivity.

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**265.** Aryl halides are less reactive in nucleophilic substitution reactions. Give one example for nucleophilic substitution reactions of aryl halides.

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**266.** Write a method for the preparation of alkyl halides.

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**267.** Which of the following is not a polyhalogen compound?

A. Chloroform

B. Freon

C. Carbon tetrachloride

D. Chlorobenzene

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**268.** Give two methods of preparation of haloalkanes.

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**269.** Give two uses of iodoform.

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**270.** Write DDT structure. Give harmful effects of DDT.

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**271.** Write the following reaction:

Wurtz Fittig Reaction

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**272.** What are ambident nucleophiles? Explain with an example ?

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**273.** Write short note on Sandmeyer reactions.

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**274.** C—Cl bond of chlorobenzene in comparison C—Cl bond of methyl chloride is

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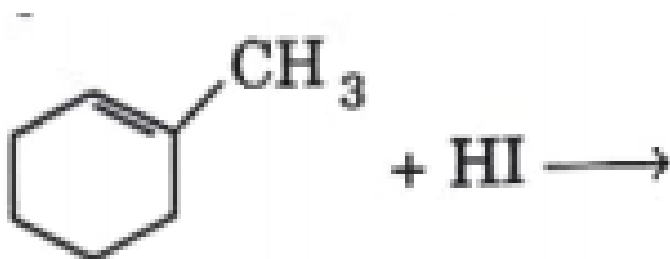
275. The dipole moment of chlorobenzene is lower than that of cyclohexyl chloride. Explain.

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276. Give reasons:  $S_N1$  reactions are accompanied by racemization in optically active alkyl halides.

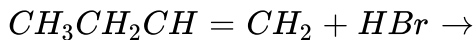
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277. Complete the following reaction equation :



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278. Complete the following reaction equation :



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279. Express 1708 in roman numbers.

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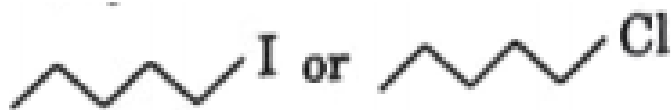
280. Express 1709 in roman numbers.

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281. Which one of the following compounds is more easily hydrolyzed by KOH and why?  $CH_3CHClCH_2CH_3$  or  $CH_3CH_2Cl$

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282. Which one undergoes  $S_N2$  substitution reaction faster and why?



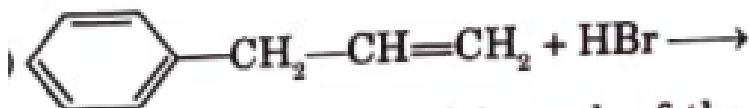
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283. Draw the structures of major monohalo product of the following reaction :



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284. Draw the structures of major monohalo product of the following reaction :



1. In each of the foll



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**285.** Which halogen compound of the following pairs will react faster in  $S_N2$  reaction :  $CH_3Br$  or  $CH_3I$



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**286.** Which halogen compound in the following pairs will react faster in  $S_N2$  reactions.

$(CH_3)_3C - Cl$  or  $CH_3 - Cl$



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**287.** How do you convert the following:

Prop-1-ene to 1- fluoropropane.



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**288.** How do you convert the following:

Chlorobenzene to 2-chlorotoluene.

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**289.** Write the main product when n-butyl chloride is treated with alcoholic KOH.

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**290.** Write the main products when 2, 4, 6-trinitrochlorobenzene is subjected to hydrolysis.

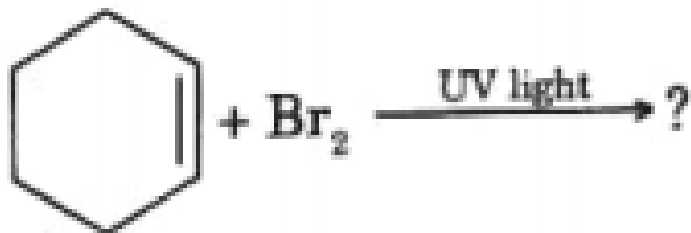
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**291.** Write the main product when.

Methyl chloride is treated with AgCN.

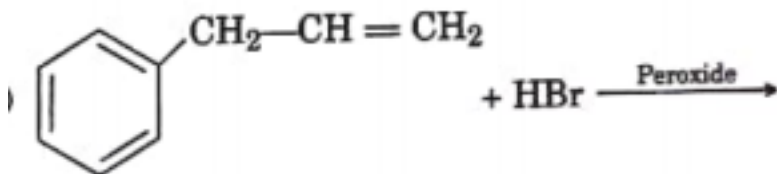
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292. Write the major monohalo product(s) of the following reaction :



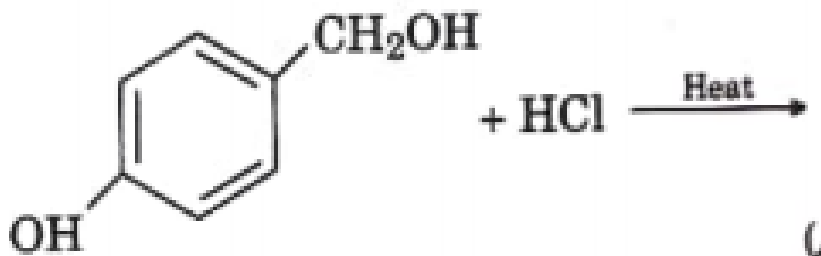
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293. Write the major monohalo product(s) of the following reaction :



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294. Write the major monohalo product(s) of the following reaction :



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295. For the preparation of alkyl chlorides from alcohols, thionyl chloride ( $\text{SOCl}_2$ ) is preferred. Give reason.

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296. Haloalkanes undergo  $\beta$ -elimination reaction in the presence of alcoholic potassium hydroxide. Which is the major product obtained by the  $\beta$ -elimination of 2-bromopentane ?

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297. Haloalkanes undergo  $\beta$ -elimination reaction in the presence of alcoholic potassium hydroxide. Name the rule which leads to the product in the above elimination reaction.

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298. Write the chemical equation for the preparation of toluene by Wurtz Fittig reaction.

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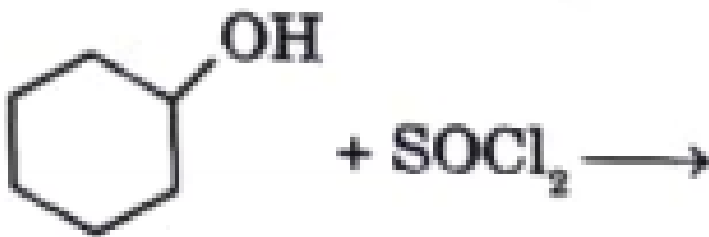
299. Identify all possible alkenes that would be formed on dehydrohalogenation of 2-chloropentane with alcoholic KOH. Also identify the major alkene:  $CH_3 - CH_2 - \underset{\substack{| \\ H}}{CH} - \underset{\substack{| \\ Cl}}{CH} - \underset{\substack{| \\ H}}{CH_2} \xrightarrow{\text{Alcoholic KOH}} ?$

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300. Express 1712 in roman numbers.

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301. Draw the structures of major monohalo product of the following reaction :



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302. Express 1710 in roman numbers.

[▶ Watch Video Solution](#)

303. Express 1711 in roman numbers.



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**304.** Explain the following reaction :

Wurtz reaction.



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**305.** Explain the following reactions :

Ulmann reaction



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**306.** Express 1713 in roman numbers.



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**307.** Express 1715 in roman numbers.



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



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**309.** Explain the following reaction :

Sandmeyers reaction.



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**310.** Give the following reactions:

Fitting reaction



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**311.** Express 1716 in roman numbers.

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

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**313.** Express 1717 in roman numbers.

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**314.** Write a short notes on following:

Markownikov's rule

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**315.** Express 1718 in roman numbers.

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**316.** An organic compound 'A' having molecular formula  $C_4H_8$  on treatment with dil.  $H_2SO_4$  gives B. B on treatment with conc. HCl and anhydrous  $ZnCl_2$  gives secondary halide C. Write all the reactions and identify A, B and C.

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**317.** Convert ethyl chloride into methyl chloride.

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**318.** Express 1720 in roman numbers.

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**319.** Write short notes on the following : Friedel-Craft's alkylation.

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**320.** Write short notes on the following : Anti-Markovnikov's rule.

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**321.** A hydrocarbon 'A' ( $C_4H_8$ ) is added with HBr in accordance with Markovnikov's rule to give compound 'B' which on hydrolysis with aqueous alkali forms tertiary alcohol 'C' ( $C_4H_{10}O$ ). Identify A, B and C.

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**322.** Write the following reactions

Convert chlorobenzene into phenol

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**323.** Express 1721 in roman numbers.

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324. Haloarenes are less reactive towards nucleophilic substitution reactions than haloalkanes. Give a reason.

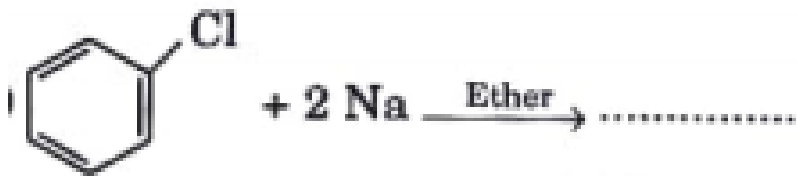
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325. Complete the following equation :



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326. Complete the following equation :



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

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**328.** Explain the following reaction :

Wurtz reaction.

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**329.** Express 1722 in roman numbers.

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**330.** Express 1723 in roman numbers.

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331. Differentiate between haloalkanes and haloarenes.

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

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333. How will you differentiate between  $S_N1$  and  $S_N2$  reaction mechanism ?

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

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**335.** Express 1725 in roman numbers.

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**336.** D.D.T. is one of the most powerful insecticide which is effective against the mosquitoes that spread malaria. Mukesh's mother wanted to buy D.D.T. from the market to use at night to protect her family from mosquitoes. But Mukesh stopped his mother from purchasing D.D.T. What values are attached to suggestion of Mukesh ?

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**337.** Trichloromethane or chloroform is a colourless oily liquid with a peculiar smell. It is sparingly soluble in water. The vapour when inhaled cause unconsciousness and therefore, it is used as an anaesthetic.

Answer the following question : What happens when chloroform is not protected from oxygen during its storage?

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**338.** Trichloromethane or chloroform is a colourless oily liquid with a peculiar smell. It is sparingly soluble in water. The vapour when inhaled cause unconsciousness and therefore, it is used as an anaesthetic. Answer the following question : Why is the use of chloroform as an anaesthetic has been reduced?

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**339.** Express 1726 in roman numbers.

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**340.** Freons, chlorofluoro compounds of methane and ethane are stable, low boiling, non-toxic, non-inflammable and non-reactive compounds. These are extensively used in refrigerators and air conditioners. These are also used as propellants for aerosols and foams to spray out deodorants, cleansers, shaving creams and hair sprays. However, its use has been discouraged and restricted in some countries. As a student of science, What values are associated with this decision ?

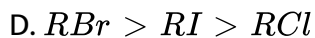
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**341.** Freons, chlorofluoro compounds of methane and ethane are stable, low boiling, non-toxic, non-inflammable and non-reactive compounds. These are extensively used in refrigerators and air conditioners. These are also used as propellants for aerosols and foams to spray out deodorants, cleansers, shaving creams and hair sprays. However, its use has been discouraged and restricted in some countries. As a student of science, What is freon-12? How is it prepared?

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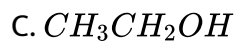
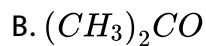
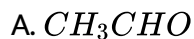


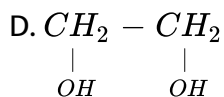
**342.** For a given alkyl group, the boiling points of alkyl halides follow the order :



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**343.** In the reaction :  $CH_3CHCl_2 \xrightarrow{aq. KOH} Intermediate \rightarrow X$ ,  $X$  is:





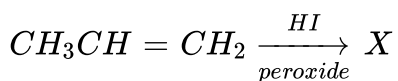
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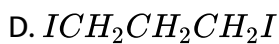
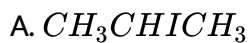
**344.** Which of the following is not a chiral ?

- A. 3-Methylhexane
- B. 2, 3-Dihydroxypropanoic acid
- C. 2, 3-Dibromobutane
- D. Butan-2-ol

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**345.** The major product X in the following reaction is:





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**346.** Freon-12 is commonly used as

A. an insecticide

B. a refrigerant

C. a solvent

D. fire extinguisher.

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347. Chlorobenzene can be obtained from benzene diazonium chloride by

- A. Gattermann's reaction
- B. Friedel Crafts reaction
- C. Wurtz reaction
- D. Fittig reaction.



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348. The IUPAC name of  $CH_3 - CH = CHCH_2Br$  is:

- A. 1-Bromobut-2-ene
- B. 1-Bromobut-3-ene
- C. 2-Butene-1-bromide
- D. 4-Bromobut-2-ene.



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349. Discuss the formation of monel metal?

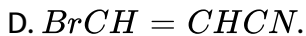
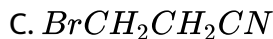
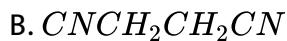
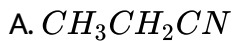
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350. The reaction :  $RX + 2Na + RX \xrightarrow{\text{Dry ether}} R - R + 2NaX$  is called :

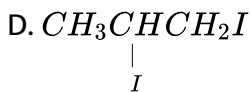
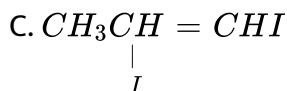
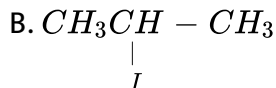
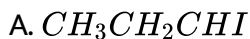
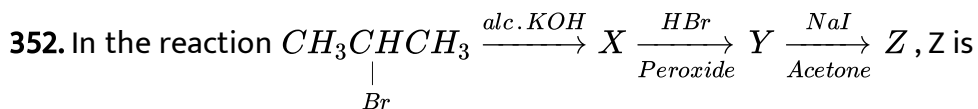
- A. Sandmeyer's reaction
- B. Fittig reaction
- C. Wurtz reaction
- D. Williamson's synthesis.

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351. In the reaction  $CH_3CH_2I \xrightarrow{\text{alc. KOH}} X \xrightarrow{Br_2} Y \xrightarrow{KCN} Z$ , Z is :

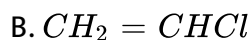
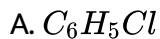


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353. Which of the following is most reactive towards nucleophilic substitution reaction ?



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354. The reaction of toluene with  $Cl_2$  in the presence of  $FeCl_3$  gives predominantly

A. Benzoyl chloride

B. m-chloro toluene

C. Benzyl chloride

D. o- and p-chlorotoluene.

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355. The reagents for the following conversions is/are:



A. alcoholic KOH

B.  $\text{Zn} \mid \text{CH}_3\text{OH}$

C. aq. KOH followed by  $\text{NaNH}_2$

D. alcoholic KOH followed by  $\text{NaNH}_2$ .

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356. During the conversion :  
 $C_6H_5CH_2CH_3 \xrightarrow{(a)} X \xrightarrow{(b)} C_6H_5CH = CH_2$  the reagents (a) and (b)  
are respectively

A.  $SOCl_2$ , alc. KOH

B.  $Cl_2 / h\nu, H_2O$

C.  $SO_2Cl_2$ , aq. KOH

D.  $SO_2Cl_2$ , alc. KOH



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357. Which of the following will give ethanal with aqueous KOH?

A. Chloroacetic acid

B. 1, 2-dichloroethane

C. 1, 1-Dichloroethane

D. ethyl chloride.



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**358.** Express 1727 in roman numbers.



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**359.** Express 1728 in roman numbers.



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**360.** Express 1730 in roman numbers.



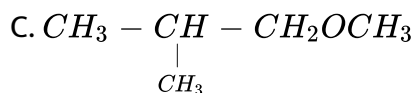
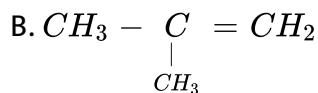
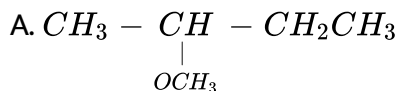
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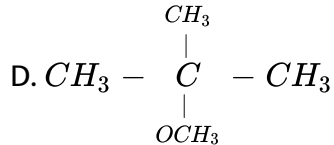
361. In the addition of HBr to propene in the absence of Peroxides the first step involves the addition of :



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362. The major product in the reaction is  $CH_3 - \underset{\underset{CH_3}{|}}{CH} - CH_2Br \xrightarrow[CH_3OH]{CH_3O^-}$





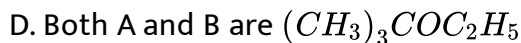
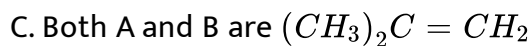
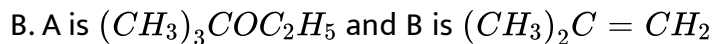
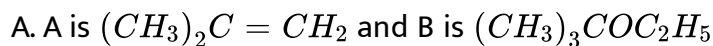
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363. In the reaction:



A and B are

respectively:



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**364.** Express 1731 in roman numbers.

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**365.** Express 1732 in roman numbers.

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**366.** Express 1733 in roman numbers.

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**367.** Iodoethane reacts with sodium in ether to form the product

A. Pentene

B. Propyne

C. Butene

D. Butane

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**368.** When ethyl iodide and n-propyl iodide are allowed to react with sodium metal in ether, the number of alkanes that could be produced is

- A. only one
- B. two alkanes
- C. three alkanes
- D. four alkanes.

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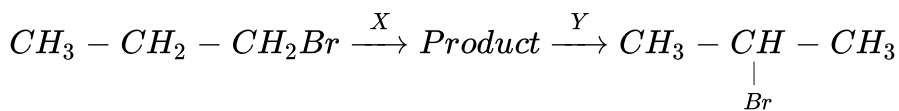
**369.** Express 1735 in roman numbers.

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370. Express 1736 in roman numbers.

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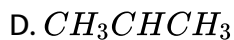
371. Identify the set of reagents/reaction conditions 'X' and 'Y' in the following set of transformation :



- A. X = dilute aqueous solution,  $20^\circ C$ , Y = HBr/acetic acid at  $20^\circ C$
- B. X = dilute aqueous NaOH,  $20^\circ C$ , Y = HBr/acetic acid at  $20^\circ C$
- C. X = dilute aqueous NaOH,  $20^\circ C$ , Y = HBr /  $CHCl_3$ ,  $0^\circ C$
- D. X = concentrated alcoholic NaOH,  $80^\circ C$ , Y = HBr /  $CHCl_3$ ,  $0^\circ C$

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372. The intermediate during the addition of HCl to propene in the presence of peroxide is



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373. 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.





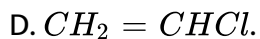
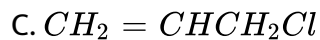
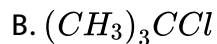
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374. Express 1737 in roman numbers.



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375. Which of the following will be least reactive in nucleophilic substitution ?



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**376.** Express 1738 in roman numbers.



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**377.** Express 1750 in roman numbers.



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**378.** Express 1751 in roman numbers.



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**379.** Express 1172 in roman numbers.



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**380.** Express 1753 in roman numbers.



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**381.** Discuss how artificial gold is formed?



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**382.** Express 1755 in roman numbers.



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**383.** Express 1756 in roman numbers.



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**384.** Express 1757 in roman numbers.



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**385.** Express 1758 in roman numbers.

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**386.** Express 1760 in roman numbers.

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**387.** Express 1761 in roman numbers.

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**388.** Express 1762 in roman numbers.

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**389.** Express 1763 in roman numbers.

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390. Discuss how gun metal is formed?

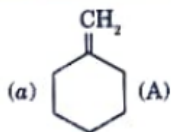
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391. Express 1765 in roman numbers.

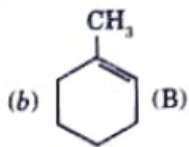
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392. In the reaction with HCl, an alkene reacts in accordance with the Markovnikov's rule, to give a product 1-chloro-1- methylcyclohexane. The possible alkene is:

A.



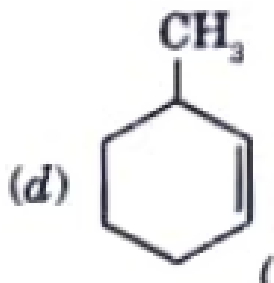
B.



C.



D.



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393. Out of  $S_N1$  and  $S_N2$ , which reaction occurs with Racemisation.

A. 100% retention

B. 100% inversion

C. 100% racemization

D. inversion more than retention leading to partial racemization.

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394. Discuss the formation of bell metal?

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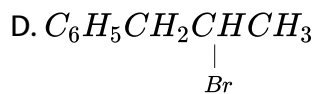
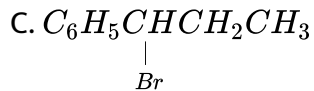
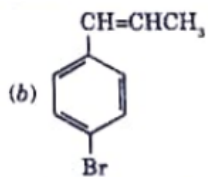
395. Discuss the formation of constantan?

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396. The reaction of  $C_6H_5CH = CHCH_3$  with HBr produces

A.  $C_6H_5CH_2CH_2CH_2Br$

B.



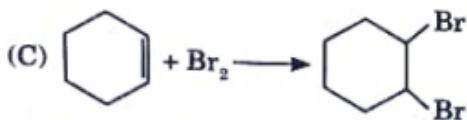
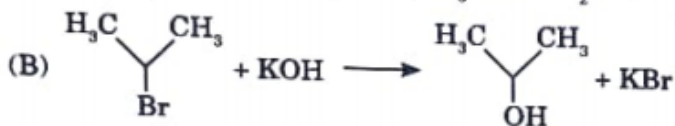
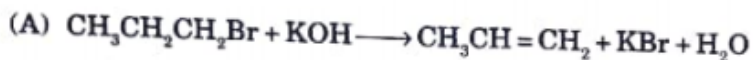
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397. Discuss how German silver is formed?

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398. For the following reactions:



Which of the

following statement is correct?

- A. (A) is elimination, (B) and (C) are substitution reactions.
- B. (A) is substitution, (B) and (C) are addition reactions.
- C. (A) and (B) are elimination reactions and (C) is addition reaction.
- D. (A) is elimination, (B) is substitution and (C) is addition reaction.

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399. Discuss how Dutch metal is formed?

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400. Discuss how Hydroleum is formed?



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401. The hydrolysis of 2-bromo-3-methylbutane by  $S_N1$  mechanism gives mainly

- A. 3-methyl-2-butanol
- B. 2-methyl-2-butanol
- C. 2,2-dimethyl-2-propanol
- D. 2-methyl-1-butanol



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**402.** A dihalogen derivative (A) of a hydrocarbon having two carbon atoms reacts with alcoholic potash and forms another hydrocarbon which gives a red precipitate with ammoniacal solution of cuprous chloride. Compound 'A' gives an aldehyde when treated with aqueous KOH. Write down the name and formula of the compound.

A. 1,3-Dichloropropane

B. 1,2-Dichloropropane

C. 2,2-Dichloropropane

D. 1,1-Dichloropropane

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**403.** When neopentyl bromide is subjected to Wurtz reaction the product formed is :

A. 2, 2, 4, 4-tetramethylhexane

B. 2, 2, 4, 4-tetramethylpentane

C. 2, 2, 5, 5-tetramethylhexane

D. 2, 2, 3, 3-tetramethylhexane

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**404.** Which one of the following gives only one monochlore derivative ?

A. n-hexane

B. 2-methylpentane

C. 2,3-dimethylpentane

D. neo-pentane

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**405.** Arrange the following halides in order of increasing  $S_N2$  reactivity :

$(CH_3)_3CCl$ ,  $CH_3Cl$ ,  $CH_3Br$ ,  $CH_3CH_2Cl$ ,  $(CH_3)_2CHCl$

A. IgtIIIgtIIgtIV

B. IIIgtIVgtIIgtI

C. IIgt Igt IIIgt IV

D. IVgtIIIgtIIgtI



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**406.** In alkaline hydrolysis of a tertiary alkyl halide by aqueous alkali, if concentration of alkali is doubled, then the reaction rate at constant temperature

A. will be doubled

B. will be halved

C. will be tripled

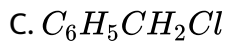
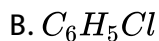
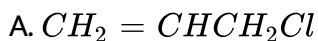
D. will remain constant

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407. Discuss how Aluminium bronze alloy is formed?

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408. The compound that does not undergo hydrolysis by  $S_N1$  mechanism is



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**409.** Discuss how nichrome alloy is formed?

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**410.** Freon-12 is commonly used as

- A. Haloform reaction
- B. Reimer-Tiemann reaction
- C. Wurtz reaction
- D. Swartz reaction

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**411.** Give major product of 2-bromo-3-methyl butane when treated with alc KOH?

- A. 2-methylbut-2-ene
- B. 2-methylbutan-1-ol
- C. 3-methylbutan-2-ol
- D. 2-methylbutan-2-ol



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**412.** Which of the following organic halogen compound undergoes hydrolysis with aqueous NaOH predominantly by  $S_N1$  mechanism ?

- A. Ethyl iodide
- B. Methyl chloride
- C. Chlorobenzene



D. Benzyl chloride

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**413.** Discuss how solder alloy is formed?

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**414.** Which one of the following organohalogen compounds when heated with alcoholic potassium hydroxide does not undergo dehydrohalogenation reaction?

A. Secondary butyl chloride

B. Isopropyl chloride

C. Neopentyl chloride

D. Isobutyl chloride

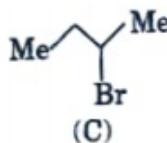
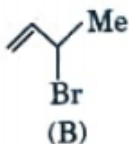
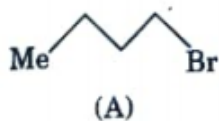
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415. Out of the following alloys, which one is formed by the combination of Fe, Al, Ni and Co?

- A. Solder
- B. Brass
- C. Alanko
- D. German steel

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416. Consider the following bromides:



The correct

order of  $S_N1$  reactivity is :

A. CgtBgtA

B. AgtBgtC

C. BgtCgtA

D. BgtAgtC.

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417. How many chiral compounds are possible on monochlorination of 2-methylbutane ?

A. 2

B. 4

C. 6

D. 8

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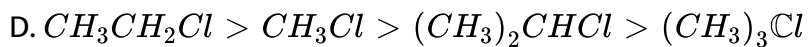
418. A solution of (-)-1-chloro-1-phenylethane in toluene racemises slowly in the presence of a small amount of  $SbCl_5$ , due to the formation of

- A. free radical
- B. carbanion
- C. carbene
- D. carbocation

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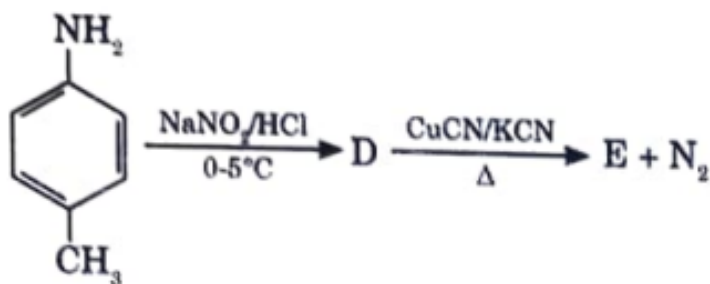
419. In  $S_N2$  reactions, the correct order of reactivity for the following compounds :  $CH_3Cl$ ,  $CH_3CH_2Cl$ ,  $(CH_3)_2CHCl$  and  $(CH_3)_3Cl$  is

- A.  $(CH_3)_2CHCl > CH_3CH_2Cl > CH_3Cl > (CH_3)_3Cl$
- B.  $CH_3Cl > (CH_3)_2CHCl > CH_3CH_2Cl > (CH_3)_3Cl$
- C.  $CH_3Cl > CH_3CH_2Cl > (CH_3)_2CHCl > (CH_3)_3Cl$



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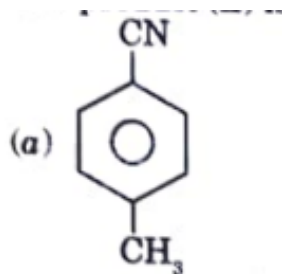
420. In the reaction,



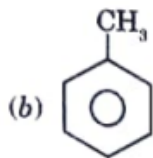
The product

(E) is

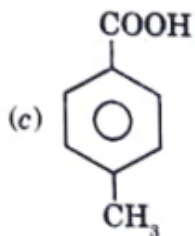
A.



B.



C.



D.



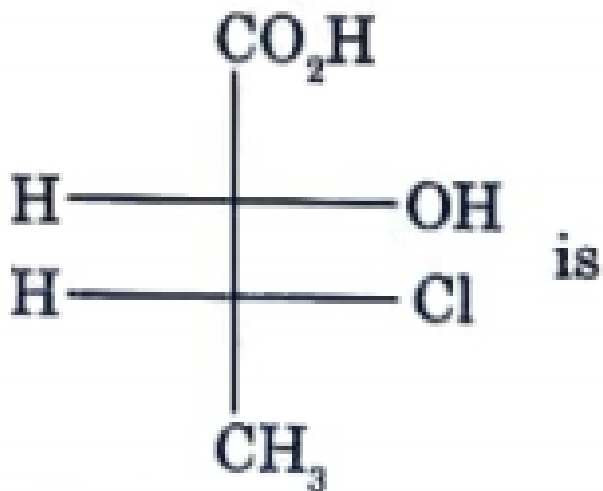
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421. Discuss how Alanko is formed?



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422. The absolute configuration of



A. (2R, 3S)

B. (2S, 3R)

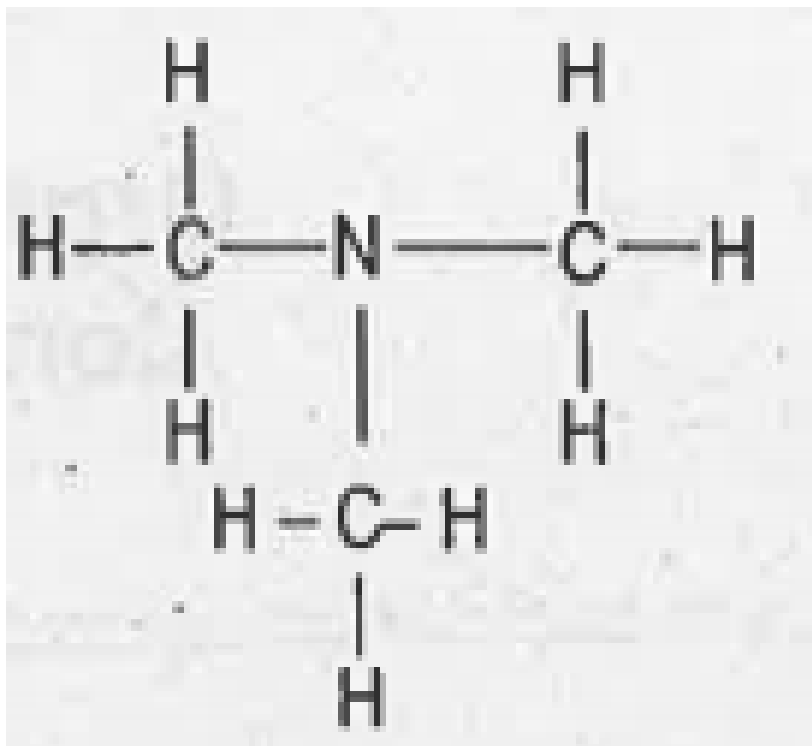
C. (2S, 3S)

D. (2R,3R)



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423. Write the IUPAC name of :



A. all of these

B. (I) and (III)

C. III only

D. I and II

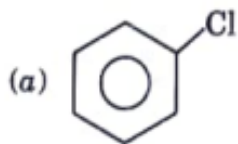


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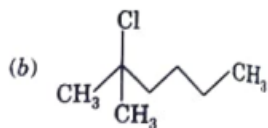


424. Which of the following shows  $S_N1$  reaction most readily?

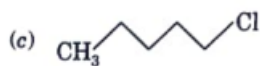
A.



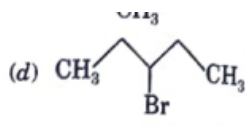
B.



C.



D.



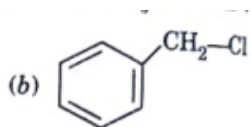
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425. Which of the following compounds will give a yellow precipitate with iodine and alkali ?

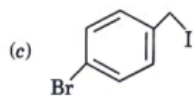
A.



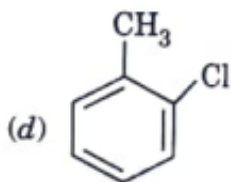
B.



C.



D.



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**426.** The alkene that will give the same product with HBr in the absence as well as in the presence of peroxide is

- A. 2-butene
- B. 1-butene
- C. propene
- D. 1-hexene



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**427.** When 3-phenylpropene reacts with HBr in the presence of peroxide, the major product formed is

- A. 2-bromo-1-phenylpropane
- B. 1, 2-dibromo-3-phenylpropane
- C. 3-(o-bromophenyl)propene

D. 1-bromo-3-phenylpropane

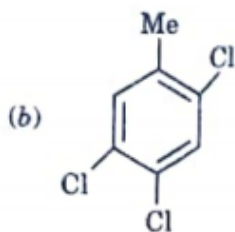
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428. By passing excess of  $Cl_2(g)$  in boiling toluene, which one of the following compounds is exclusively formed?

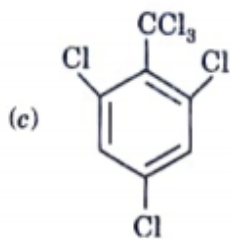
A.



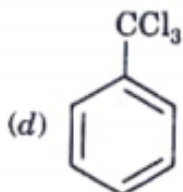
B.



C.



D.



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429. Which of the following is not true for  $S_N1$  reaction?

A. Favoured by polar solvents.

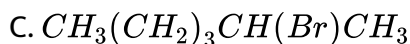
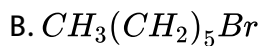
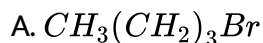
B.  $3^\circ$ -alkyl halides generally react through  $S_N1$  reaction.

C. The rate of the reaction does not depend upon the molar concentration of the nucleophile.

D.  $1^\circ$ -alkyl halides generally react through  $S_N1$  reaction.

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**430.** An alkyl bromide (X) reacts with sodium in ether to form 4, 5-diethyloctane. The compound 'X' is



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**431.** Discuss how manganese steel is formed?

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**432.** Discuss how chromium steel is formed?

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**433.** How many chiral compounds are possible on monochlorination of 2-methylbutane ?

A. 2

B. 3

C. 4

D. 5

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434. The arrangement of following compounds: (i) bromomethane (ii) bromoform (iii) chloromethane (iv) dibromomethane in the increasing order of their boiling point is

- A. ivlt iilti lti
- B. lti lti ltiiltiv
- C. iiltivltii
- D. ii ltiiltiv

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435. Nichrome is an alloy because-

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436. Solder is an alloy because-







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**437.** When ethyl iodide and n-propyl iodide are allowed to react with sodium metal in ether, the number of alkanes that could be produced is

- A. Butane
- B. Octane
- C. Hexane
- D. Ethane



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**438.** Manganese steel is not a metal because-



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**439.** Out of the following alloys, which one is formed by the combination of Pb and Sn?

- A. Brass
- B. Bronze
- C. Coin metal
- D. Solder



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**440.** The major product obtained by the addition reaction of HBr to 4-methylpent-1-ene in the presence of peroxide is

- A. 1-bromo-4-methylpentane
- B. 4-bromo-2-methylpentane
- C. 2-bromo-4-methylpentane

D. 3-bromo-2-methylpentane

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**441.** Give the structural formula and IUPAC names of (a) iso-butyl iodide  
(b) tert-amyl bromide (c) sec-butyl bromide.

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**442.** Write the structure of the following compound and identify them as  $1^\circ$ ,  $2^\circ$  or  $3^\circ$  halides.

1-Bromo-2-methylpropane.

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**443.** Write the structure of the following compound and identify them as  $1^\circ$ ,  $2^\circ$  or  $3^\circ$  halides.

2-Chloro-2-methylpropane.

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**444.** Write the structure of the following compound and identify them as  $1^\circ$ ,  $2^\circ$  or  $3^\circ$  halides.

2-Bromo-3-methylbutane.

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**445.** Write the structure of the following compound and identify them as  $1^\circ$ ,  $2^\circ$  or  $3^\circ$  halides.

3-Bromopentane.

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**446.** Write the structure of the following compound and identify them as  $1^\circ$ ,  $2^\circ$  or  $3^\circ$  halides.

2-Bromo-2-methylbutane.

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**447.** Write the structure of the following compound and identify them as  $1^\circ$ ,  $2^\circ$  or  $3^\circ$  halides.

Neopentyl chloride.

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**448.** Write the structure of the following dihaloalkanes and identify them as gem or vicinal, if any : 2, 3-Dichlorobutane.

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**449.** Write the structure of the following dihaloalkanes and identify them as gem or vicinal, if any : 2, 2-Dichlorobutane .

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**450.** Write the structure of the following dihaloalkanes and identify them as gem or vicinal, if any : 1, 4-Dichlorobutane.

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**451.** Write the structure of the following dihaloalkanes and identify them as gem or vicinal, if any : 1, 2-Dichlorobutane.

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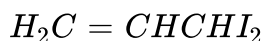
**452.** Write the structure of the following dihaloalkanes and identify them as gem or vicinal, if any : 1, 3-Dichloro-2-methylpropane.

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**453.** Write all the possible isomers of compound  $C_4H_9Br$  and give their IUPAC names.

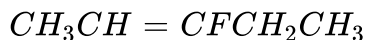
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**454.** Classify the following as alkyl, vinyl, allyl or aryl halides :



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**455.** Classify the following as alkyl, vinyl, allyl or aryl halides :



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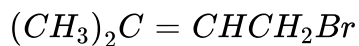
**456.** Express 2380 in roman numbers.

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457. Express 2371 in roman numbers.

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458. Classify the following as alkyl, vinyl, allyl or aryl halides :



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459. Classify the following as alkyl, vinyl, allyl or aryl halides :  $C_6H_5Br$

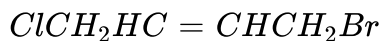
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460. Write IUPAC name of the following compound :  $CHF_2CBrClF$

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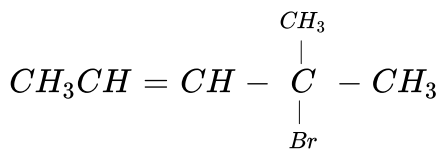


461. Write IUPAC name of the following compound :



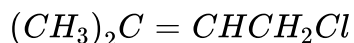
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462. Write IUPAC name of the following compound :



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463. Write IUPAC name of the following compound :



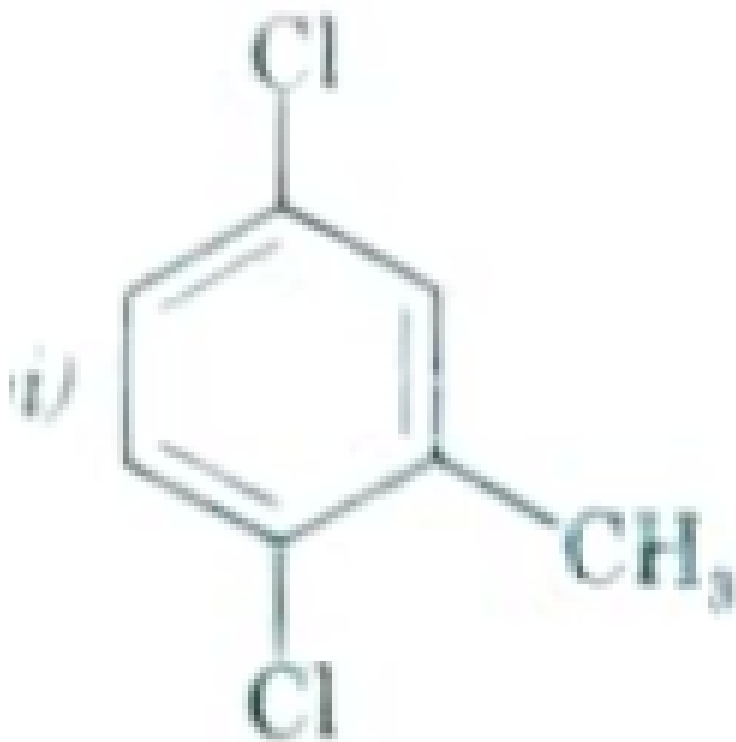
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464. Write IUPAC name of the following compound :



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465. Write IUPAC name of the following compound :



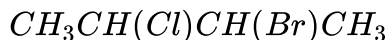
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466. Write IUPAC name of the following compound :  $CH_3 - \begin{array}{c} CH_3 \\ | \\ C \\ | \\ CH_3 \end{array} - Cl$



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467. Write IUPAC name of the following compound :



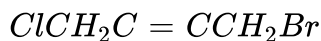
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468. Write IUPAC name of the following compound :  $CHF_2CBrClF$



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469. Write IUPAC name of the following compound :

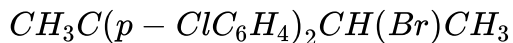


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470. Express 2322 in roman numbers.

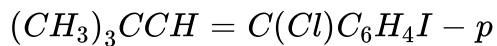
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471. Write IUPAC name of the following compound :



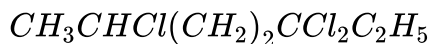
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472. Write IUPAC name of the following compound :



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473. Write IUPAC name of the following compound :



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**474.** Express 2338 in roman numbers.



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**475.** Express 203 in roman numbers.



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**476.** Express 1251 in roman numbers.



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**477.** Express 2557 in roman numbers.



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**478.** Express 2558 in roman numbers.



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**479.** Express 2560 in roman numbers.



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**480.** Express 1352 in roman numbers.



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**481.** Express 2353 in roman numbers.



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**482.** Express 2355 in roman numbers.



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**483.** Name the reagents used to convert 1-Chloropropane to 1-nitropropane .Give chemical reactions.

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**484.** Name the reagents used to convert Bromoethane to butane.Give chemical reactions.

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**485.** Name the reagents used to convert Bromoethane to ethoxyethane.  
Give chemical reactions.

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**486.** Express 2358 in roman numbers.

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**487.** Name the reagents used to convert Bromoethane to diethyl thioether. Give chemical reactions.

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**488.** Select the compound in the following pairs that can be converted to corresponding alkyl bromide more rapidly on which treated with hydrogen bromide : 1-butanol or 2-butanol .

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**489.** Select the compound in the following pairs that can be converted to corresponding alkyl bromide more rapidly on which treated with hydrogen bromide : 2-methyl-1-butanol or 2-butanol .

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**490.** Select the compound in the following pairs that can be converted to corresponding alkyl bromide more rapidly on which treated with hydrogen bromide : 2-methyl-1-butanol or 2-butanol .

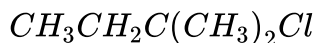
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**491.** Which will be the main product when the following haloalkanes are treated with alcoholic KOH ?

2-bromobutane.

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**492.** Which will be the main product when the following haloalkanes are treated with alcoholic KOH ?



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**493.** Predict the alkenes that would be formed by the dehydrohalogenation of the following halides with sodium ethoxide and identify the major alkene : 2-Chloro-2-methylbutane.

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**494.** Predict the alkenes that would be formed by the dehydrohalogenation of the following halides with sodium ethoxide and identify the major alkene : 3-bromo-2,2,3-trimethylpentane

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**495.** Predict the alkenes that would be formed by the dehydrohalogenation of the following halides with sodium ethoxide and identify the major alkene : 1-Bromo-1-methylcyclohexane.

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**496.** Predict the alkenes that would be formed by the dehydrohalogenation of the following halides with sodium ethoxide and identify the major alkene : 1-Bromo-1-methylcyclohexane.

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**497.** Which out of o-chloronitrobenzene and 2, 4, 6-trinitrochlorobenzene is more reactive towards nucleophilic substitution?

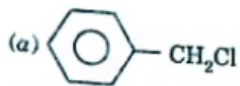
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**498.** Write the structure of diphenyl. How is it prepared from chlorobenzene ?

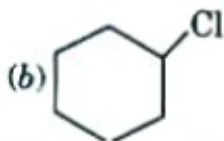
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**499.** Which of the following is an aryl halide ?

A.



B.



C.

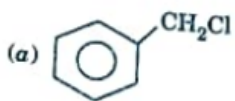


D.

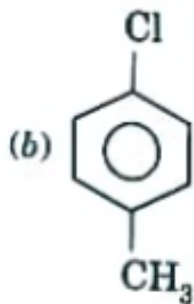
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500. Which of the following will be least reactive towards nucleophilic substitution reaction ?

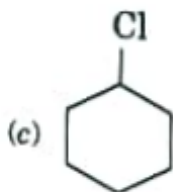
A.



B.



C.



D.  $C_2H_5Cl$

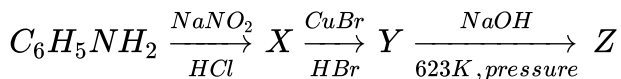


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501. Write the possible isomers of the aromatic compound having molecular formula  $C_7H_7Cl$ . Which of these will have weakest C-Cl bond ?

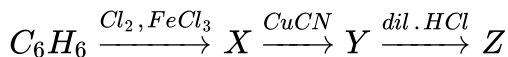
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502. Identify X, Y and Z in the following reactions :



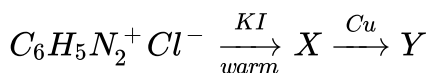
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503. Identify X, Y and Z in the following reactions :



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504. Identify X and Y in the following reactions :



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**505.** Give reagent, inorganic or organic needed to convert benzyl bromide into benzyl iodide.



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**506.** Give reagent, inorganic or organic needed to convert benzyl bromide into benzyl ethyl ether.



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**507.** Give reagent, inorganic or organic needed to convert benzyl bromide into benzyl alcohol.



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**508.** Give reagent, inorganic or organic needed to convert benzyl bromide into benzyl cyanide.

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**509.** Give reagent, inorganic or organic needed to convert benzyl bromide into benzyl acetate.

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**510.** Express 2361 in roman numbers.

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**511.** Express 2362 in roman numbers.

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512. Express 2363 in roman numbers.

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513. Express 2372 in roman numbers.

 [Watch Video Solution](#)

514. Express 2365 in roman numbers.

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515. Express 2366 in roman numbers.

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516. Express 2367 in roman numbers.

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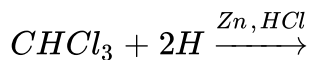
517. Express 2368 in roman numbers.

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518. Express 2370 in roman numbers.

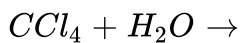
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519. Complete the following reaction :



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520. Complete the following reaction :





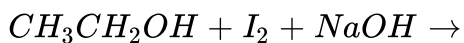
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521. Complete the following reaction :



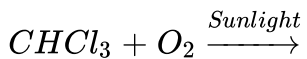
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522. Complete the following reactions :



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523. Complete the following reaction :



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524. Express 2373 in roman numbers.

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525. True or False : The dipole moment of  $CH_3F$  is larger than that of  $CH_3Cl$ .

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

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527. True or False :  $CH_3CH_2I$  is more reactive than  $CH_3CH_2Cl$  towards KCN.

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528. Express 2532 in roman numbers.

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529. Express 2533 in roman numbers.

 [Watch Video Solution](#)

530. Express 2535 in roman numbers.

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

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**532.** Express 2536 in roman numbers.



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**533.** Express 2537 in roman numbers.



**Watch Video Solution**

**534.** Express 2538 in roman numbers.



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**535.** Express 2550 in roman numbers.



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**536.** Express 2551 in roman numbers.





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537. Express 2552 in roman numbers.



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538. True or False : Thioethers are obtained by reacting alkyl halides with sodium hydrosulphide.



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539. Boiling point of iodobenzene is more than that of bromobenzene.



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540. Complete the missing blanks : Isobutyl bromide is an example of..... alkyl halide.



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541. Nitro alkanes are formed when alkyl halides react with..... and alkyl nitrites are formed when alkyl halides react with .....

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542. Hydrolysis of 2-bromo-3-methylbutane gives ..... the major product.

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543. Toluene reacts with  $Cl_2$  in the presence of  $FeCl_3$  to give .....

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544. D.D.T. is prepared by condensing ..... with chlorobenzene in the presence of.....





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**545.** Express 2553 in roman numbers.



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**546.** Formation of phenol from chlorobenzene is an example of ..... aromatic substitution.



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



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**548.** Butane nitrile may be prepared by heating

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549. With potassium cyanides, alkyl halides give..... while with silver cyanide, they give .....

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550. Alkyl halides are insoluble in water because they do not form ..... with water.

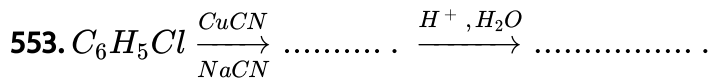
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551. BHC is commercially called .....

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552.  $CH_3CHCl_2 \xrightarrow{aqKOH} CH_3CH(OH)_2 \rightarrow \dots\dots\dots$

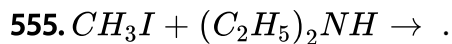
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556. Express 2600 in roman numbers.

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557. Express 2601 in roman numbers.

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558. Express 2561 in roman numbers.

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559. Express 2602 in roman numbers.

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560. Choose the correct alternative : Reaction of alkyl halide with potassium sulphite gives thioethers / thioalcohols.

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561. Boiling point of tert-butyl bromide is less/more than that of n-butylbromide.

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562. Aryl bromides can be prepared by reacting silver aromatic acids with  $Br_2$  in Carbon tetrachloride. This reaction is Hunsdiecker reaction/ Balz-Schiemann reaction.

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563. Dipole moment of  $CH_3F$  is less/more than that of  $CH_3Cl$ .

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564. Dipole moment of o-dichlorobenzene is less/more than that of m-dichlorobenzene.



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565.  $S_N1/S_N2$  proceeds through the formation of a carbocation .

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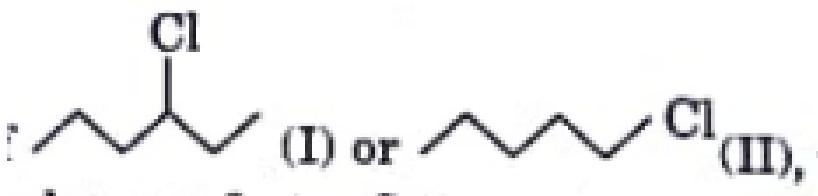
566.  $\text{CHBrClF}$  has chiral/achiral carbon atom.

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567.  $S_N2$  reaction occurs with inversion of configuration/ racemisation.

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568. Out of



the

compound I/II undergoes faster  $S_N1$  reaction.

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569. Iodobenzene when heated with copper powder gives toluene/diphenyl.

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570.  $C_6H_5Cl$  is less/more reactive than  $C_6H_{11}Cl$ .

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571. Tetrachloromethane/triiodomethane has been used as antiseptic.

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572. How will you obtain 1-bromopropane from propene ?

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573. Draw the structure of 2-chloro-3-methylpentane

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574. Give one chemical test to distinguish between  $C_2H_5Br$  and  $C_6H_5Br$ .

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**575.** Express 2562 in roman numbers.

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**576.** Write chemical reactions for the preparation of chloroform in the laboratory.

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**577.** Write the structural formula of 4-chloro-2-pentene.

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**578.** Express 2563 in roman numbers.

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579. Out of o-dichlorobenzene and p-dichloro-benzene, which has higher melting point and why ?

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

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581. Arrange the following in the order of their increasing reactivity in nucleophilic substitution reactions :  $CH_3F$ ,  $CH_3I$ ,  $CH_3Br$ ,  $CH_3Cl$

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582. A solution of KOH hydrolyses  $CH_3CHClCH_2CH_3$  and  $CH_3CH_2CH_2CH_2Cl$ . Which one of these is more easily hydrolysed ?



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



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584. Express 2565 in roman numbers.



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585. Which of the following is most reactive towards  $S_N2$  reaction?

$CH_3Br$ ,  $(CH_3)_2CHBr$ ,  $(CH_3)_3CBr$



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586. Explain why p-dichlorobenzenes have higher melting points and lower solubilities than that of their o- and m-isomers?

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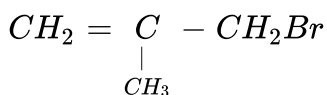
587.  $H_3C - Br + AgF \rightarrow H_3C - F + AgBr$ . Name the reaction.

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588. Write the IUPAC name of the following compound :  $(CH_3)_3CCH_2Br$

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589. Write IUPAC name of the following compound :



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590. Write the IUPAC name of  $CH_3 - \underset{\substack{| \\ Cl}}{CH} - CH_2 - CH = CH_2$ .

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591. What happens when  $CH_3Br$  is treated with KCN ?

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592. Write the IUPAC name of  $CH_3CH = CH - \underset{\substack{| \\ Br}}{\overset{CH_3}{C}} - CH_3$ .

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593. Write the IUPAC name of  $(CH_3)_2CHCH(Cl)CH_3$ .

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594. Express 2566 in roman numbers.

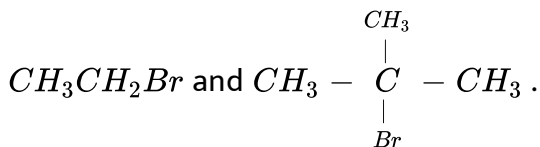
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595. Arrange the following halides in order of increasing  $S_N2$  reactivity :

$(CH_3)_3CCl$ ,  $CH_3Cl$ ,  $CH_3Br$ ,  $CH_3CH_2Cl$ ,  $(CH_3)_2CHCl$

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596. Which would undergo  $S_N2$  reaction faster in the following pair and why?



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597. Express 2567 in roman numbers.





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598. Arrange 2-bromo-2-methylbutane, 1-bromopentane and 2-bromopentane in order of increasing  $S_N2$  reactivity.



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599. What product is obtained when toluene is treated with  $Cl_2$  in the presence of light.



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600. Express 2568 in roman numbers.



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601. Express 2570 in roman numbers.



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602. Express 2571 in roman numbers.

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603. Express 2572 in roman numbers.

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604. Express 2573 in roman numbers.

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605. Express 2575 in roman numbers.

[Watch Video Solution](#)



606. Express 2576 in roman numbers.



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607. Express 2577 in roman numbers.



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608. Express 2578 in roman numbers.



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609. Express 2580 in roman numbers.



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610. Express 2581 in roman numbers.



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611. Express 2582 in roman numbers.

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612. Express 2583 in roman numbers.

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613. Which of the following has highest dipole moment in the following ?



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**614.** Which of the following is not a polyhalogen compound?

- A. Chloroform
- B. Freon
- C. Carbon tetrachloride
- D. Chlorobenzene

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**615.** Express 2585 in roman numbers.

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**616.** How is ethyl bromide converted into ethyl acetate ?

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617. How is ethyl bromide converted into diethyl amine?

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618. How is ethyl bromide converted into propanoic acid ?

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619. How will you convert : n-propyl bromide to iso-propyl bromide ?

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620. How will you convert : 1-bromopropane into propene?

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**621.** How will you convert : 2-propanol into 1-bromopropane?

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**622.** How will you convert : 2-chlorobutane into butanol ?

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**623.** How will you distinguish between Vinyl chloride and ethyl chloride ?

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**624.** How will you distinguish between Chlorobenzene and cyclohexyl chloride?

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625. How will you distinguish between Ethyl chloride and ethyl bromide ?

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626. Why does electrophilic substitution take place at ortho and para positions in haloarenes ?

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627. Complete the following reaction:  $CH_3Br \xrightarrow{KCN} A \xrightarrow{Na, C_2H_5OH} B$ .

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628. How will you distinguish between (give one chemical test)

$C_6H_5Cl$  and  $C_6H_{11}Cl$  ?

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**629.** How will you distinguish between (give one chemical test)

$C_6H_5Cl$  and  $C_6H_5CH_2Cl$  ?

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**630.** How the following conversion can be carried out ?

Benzene to diphenyl.

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**631.** How are the following conversions be carried out: Aniline to chlorobenzene?

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**632.** Why is chloroform stored in dark coloured bottles ?

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**633.** Aryl halide are less reactive than alkyl halides towards nucleophilic substitution reactions. Why ?

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**634.** Which compound of the following pairs will react faster in  $S_N2$  reaction with  $OH^-$  ?

$CH_3Br$  or  $CH_3I$

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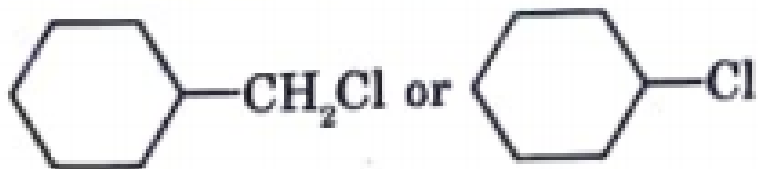
**635.** Which compound of the following pairs will react faster in  $S_N2$  reaction with  $OH^-$  ?

$(CH_3)_3CCl$  or  $CH_3Cl$

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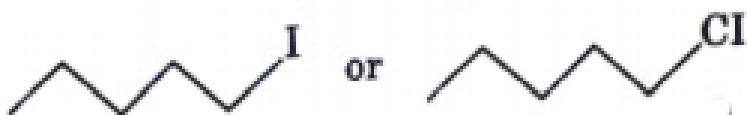


636. Which one in the following pairs of substances undergo  $S_N2$  reaction faster and why?



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637. Which one in the following pairs of substances undergo  $S_N2$  reaction faster and why?



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638. State one use each of DDT and iodoform.

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**639.** Which compound in the following couples will react faster in  $S_N2$  displacement and why?

1-Bromopentane or 2-bromopentane.

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**640.** Which compound in the following couples will react faster in  $S_N2$  displacement and why?

1-Bromo-2-methylbutane or 2-bromo-2-methyl-butane.

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

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**642.** Explain why : Grignard reagent should be prepared under anhydrous conditions.

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**643.** Explain why : Alkyl halides though polar are immiscible with water ?

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**644.** Zinc sulphide is mixed with a chemical compound to form a mixture which is used in white paints. Name that chemical compound used in the mixture and name that mixture formed?

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**645.** What is the role of ammonium nitrate in ammonal?

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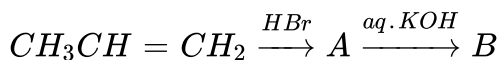
**646.** Answer the following : Of the two bromoderivatives,  $C_6H_5CH(CH_3)Br$  and  $C_6H_5CH(C_6H_5)Br$ , which one is more reactive in  $S_N1$  substitution reaction and why?

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**647.** Although chlorine is an electron withdrawing group, yet it is ortho-, para-directing in electrophilic aromatic substitution reaction. Why?

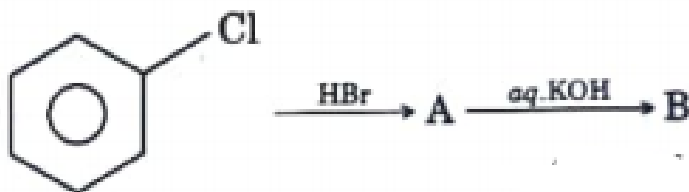
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**648.** Identify A and B



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649. Identify A and B



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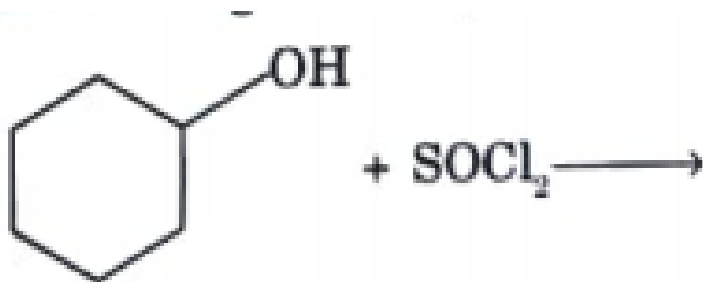
650. An alkyl chloride (X) reacts with magnesium metal in the presence of dry ether followed by treatment of ethanol gives propane. Write the structure of alkyl chloride (X).

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651. How are nitrochlorobenzene and chlorobenzene sulphonic acid prepared from chlorobenzene ?

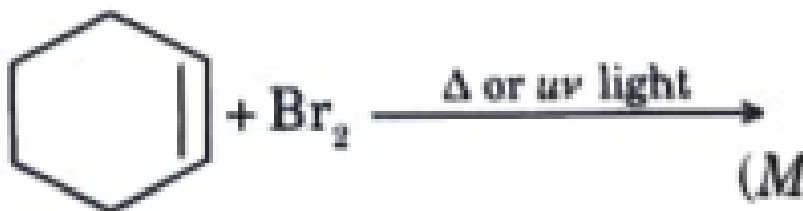
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652. Draw the structure of major monohalo products of the following reaction :



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653. Draw the structure of major monohalo products of the following reaction :



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654. Why does p-dichlorobenzene has a higher m.p. than its o- and p-isomers ?

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655. Write chemical reactions to prepare the following : D.D.T. from chlorobenzene.

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656. Write chemical reactions to prepare the following : Freon-12 from carbon tetrachloride.

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657. Most important chemical reactions of haloalkanes are their substitution reactions. What is  $S_N1$  reaction ?



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658. Most important chemical reactions of haloalkanes are their substitution reactions. Arrange the four isomeric bromobutanes in the increasing order of their reactivity towards  $S_N1$  reaction.

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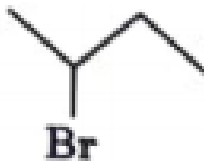
659. What is the role of aluminium powder in the formation of ammonal?

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660. Which alkyl halide from the following pair is chiral and undergoes faster  $S_N2$  reaction?



(a)



(b)



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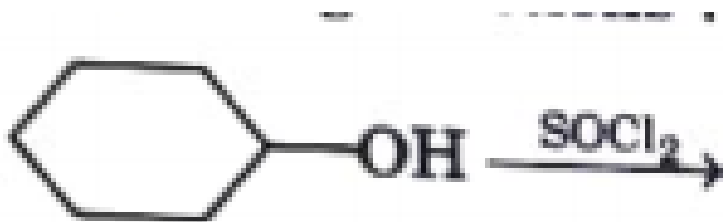
661. Out of  $S_N1$  and  $S_N2$ , which reaction occurs with Inversion of configuration.

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662. Out of  $S_N1$  and  $S_N2$ , which reaction occurs with Racemisation.

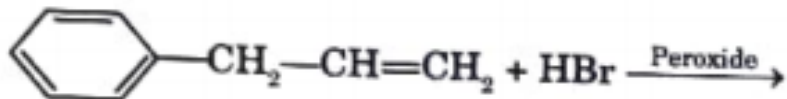
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663. Draw the structure of major monohalo product of the following reaction:



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664. Draw the structure of major monohalo product of the following reaction:



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665. What is the condition to be satisfied for a compound to be chiral ?

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666. Under what conditions, 2-methylpropene can be converted into isobutyl bromide (1-bromo-2-methylpropane) by hydrogen bromide ? Write the correct reaction involved.

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667. Express 2620 in roman numbers.

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668. Explain  $S_N2$  reaction mechanism of haloalkane. Arrange the reactivity of  $1^\circ$ ,  $2^\circ$  and  $3^\circ$  haloalkane towards  $S_N2$  reaction.

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669. Explain Wurtz Fittig reaction.

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670. What is the role of quick lime in the formation of bordeaux mixture?

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**671.** Why is chloroform stored in dark coloured bottles ?

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**672.** How will you convert chloroethane into butane ?

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**673.** Haloarenes are insoluble in water but soluble in benzene. Explain.

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**674.** Express 2587 in roman numbers.

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**675.** Express 2588 in roman numbers.



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676. What are freons ?



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677. Complete the reaction:  $CH_3CH_2Br + KOH(alc.) \rightarrow$



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678. Why the use of chloroform as anesthetic is decreasing ?



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679. What happens when -

bromobenzene is treated with Mg in the presence of dry ether



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**680.** How will you convert the following: Propene into isopropyl bromide?

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**681.** Convert propene into n-propyl bromide.

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**682.** Give the following reactions:

Fitting reaction

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**683.** Explain the following reaction :

$\beta$ -Elimination reaction.

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684. Discuss  $S_N1$  and  $S_N2$  reactions with suitable examples.

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685. Write the equations for the reaction of chlorobenzene with the following:  $CH_3Cl$  and anhyd.  $AlCl_3$

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686. Write the equations for the reaction of chlorobenzene with the following: *conc.*  $H_2SO_4 + Heat$

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687. Alkyl halides react with  $AgNO_2$  and  $KNO_2$  to give  $R - NO_2$  and  $R - ONO$  respectively. Why?

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**688.** Haloarenes are insoluble in water but soluble in benzene. Explain.

 [Watch Video Solution](#)

**689.** What happens when ethyl bromide reacts with  $AgNO_2$  ?

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**690.** Express 2603 in roman numbers.

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

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**692.** Express 2605 in roman numbers.

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**693.** Express 2606 in roman numbers.

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**694.** Give reasons: n-Butyl bromide has higher boiling point than t-butyl bromide.

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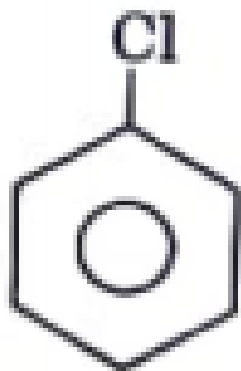
**695.** Express 2607 in roman numbers.

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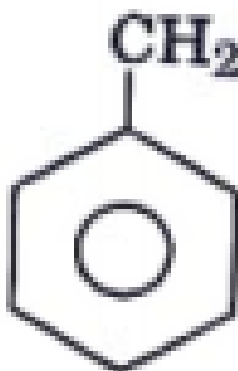
696. Give reasons: The presence of nitro group ( $-NO_2$ ) at o/p positions increases the reactivity of haloarenes towards nucleophilic substitution reactions.

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697. In



and



, identify the

compound which will undergo  $S_N1$  reaction faster and why?

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698. Express 2608 in roman numbers.



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**699.** Explain the following: asymmetric carbon.



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**700.** Express 2610 in roman numbers.



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**701.** Express 2611 in roman numbers.



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**702.** Express 2612 in roman numbers.



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**703.** Express 2613 in roman numbers.

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**704.** Express 2615 in roman numbers.

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**705.** Express 2616 in roman numbers.

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**706.** Express 2617 in roman numbers.

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**707.** Give two methods of preparation of haloalkanes.

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**708.** Give two uses of iodoform.

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**709.** Write DDT structure. Give harmful effects of DDT.

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**710.** Explain Wurtz Fittig reaction.

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**711.** What are ambident nucleophiles? Explain with an example ?

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712. Write Sandmeyer reaction.

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713. Give reasons: C-Cl bond length in chlorobenzene is shorter than C-Cl bond length in  $CH_3 - Cl$ .

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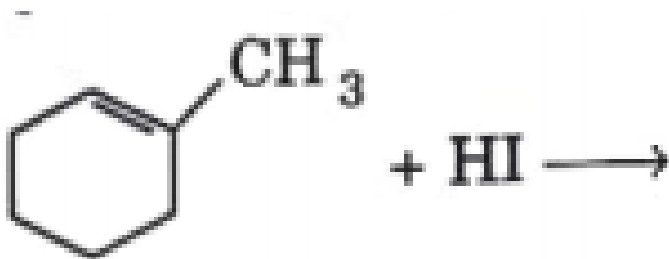
714. The dipole moment of chlorobenzene is lower than that of cyclohexyl chloride. Explain.

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715. Give reasons:  $S_N1$  reactions are accompanied by racemization in optically active alkyl halides.

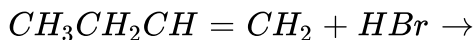
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716. Complete the following reaction equation :



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717. Complete the following reaction equation :



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718. How would you differentiate between  $S_N1$  and  $S_N2$  mechanisms of substitution reactions ? Give one example of each.

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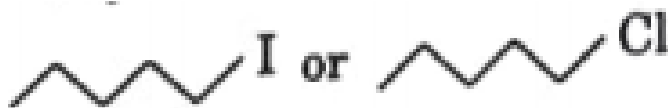
719. What is meant by chirality of a compound ? Give an example.

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720. Which one of the following compounds is more easily hydrolyzed by KOH and why?  $CH_3CHClCH_2CH_3$  or  $CH_3CH_2Cl$

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721. Which one undergoes  $S_N2$  substitution reaction faster and why ?



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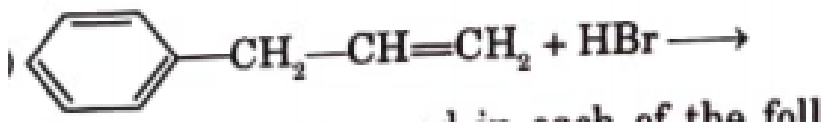
722. Draw the structures of major monohalo product of the following reaction :





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723. Draw the structures of major monohalo product of the following reaction :

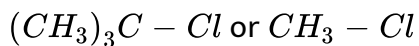


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724. Which halogen compound of the following pairs will react faster in  $S_N2$  reaction :  $\text{CH}_3\text{Br}$  or  $\text{CH}_3\text{I}$

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**725.** Which halogen compound in the following pairs will react faster in  $S_N2$  reactions.



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**726.** How would you convert the following: Prop-1-ene to 1-fluoropropane.

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**727.** How do you convert the following:

Chlorobenzene to 2-chlorotoluene.

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**728.** Write the main product when n-butyl chloride is treated with alcoholic KOH.

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729. Write the main products when 2, 4, 6-trinitrochlorobenzene is subjected to hydrolysis.

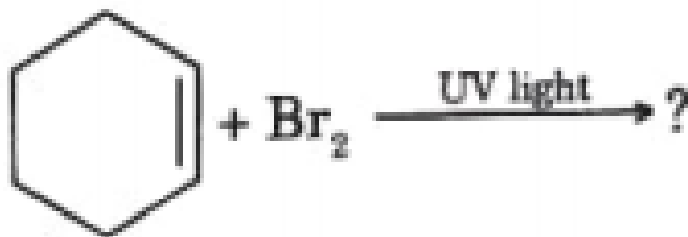
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730. Write the main product when.

Methyl chloride is treated with AgCN.

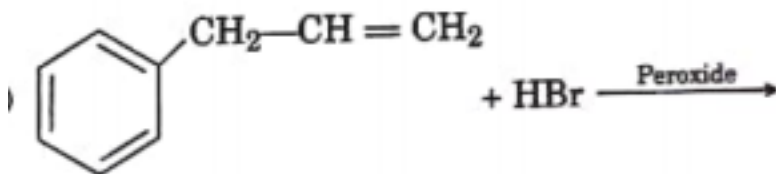
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731. Write the major monohalo product(s) of the following reaction :



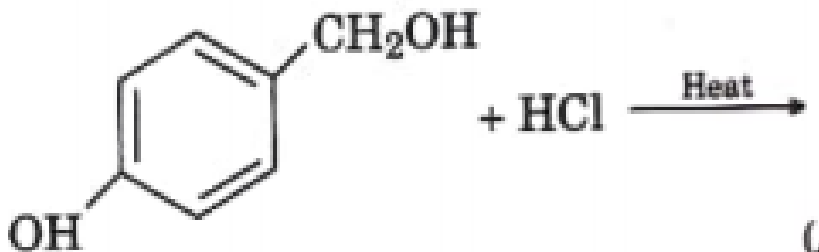
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732. Write the major monohalo product(s) of the following reaction :



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733. Write the major monohalo product(s) of the following reaction :



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**734.** For the preparation of alkyl chlorides from alcohols, thionyl chloride ( $\text{SOCl}_2$ ) is preferred. Give reason.

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**735.** Haloalkanes undergo  $\beta$ -elimination reaction in the presence of alcoholic potassium hydroxide. Which is the major product obtained by the  $\beta$ -elimination of 2-bromopentane ?

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**736.** Haloalkanes undergo  $\beta$ -elimination reaction in the presence of alcoholic potassium hydroxide. Name the rule which leads to the product in the above elimination reaction.

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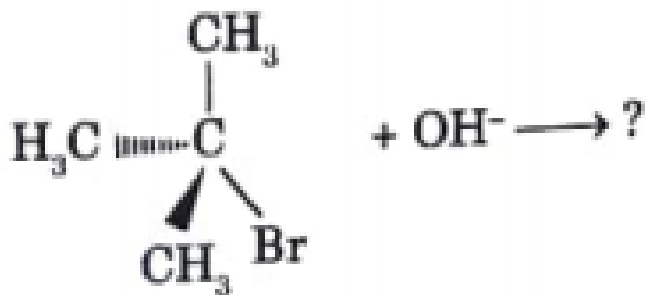
737. Write the chemical equation for the preparation of toluene by Wurtz Fittig reaction.

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738. Identify all possible alkenes that would be formed on dehydrohalogenation of 2-chloropentane with alcoholic KOH. Also identify the major alkene:  $CH_3 - CH_2 - \underset{\substack{| \\ H}}{CH} - \underset{\substack{| \\ Cl}}{CH} - \underset{\substack{| \\ H}}{CH_2} \xrightarrow{\text{Alcoholic KOH}} ?$

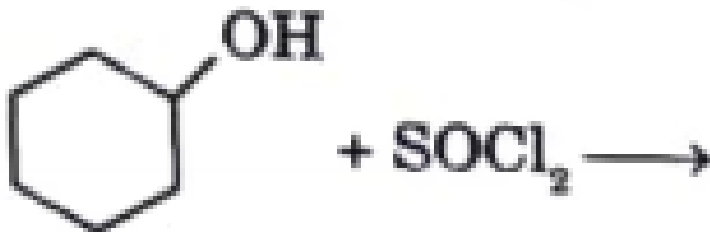
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739. Write the products of the following reaction which is a first-order reaction giving the steps involved :



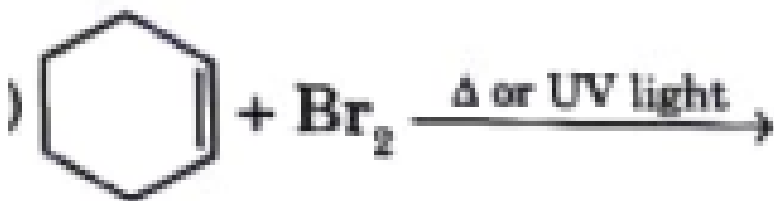
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740. Draw the structures of major monohalo product of the following reaction :



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741. Draw the structures of major monohalo product of the following reaction :



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742. Explain the following reactions:

Balz Schiemann reaction.

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743. Explain the following reaction :

Wurtz reaction.

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**744.** Explain the following reactions :

Ulmann reaction

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**745.** Give two uses of chloroform.

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

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

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**748.** Explain the following reaction :

Sandmeyer's reaction.

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**749.** Give the following reactions:

Fitting reaction

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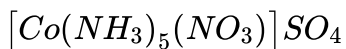
**750.** Give two uses of iodoform.

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

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752. Write the name of ionisation isomerism of following compound



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753. Write a short notes on following:

Markownikov's rule

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754. Write short notes on the

Borodine Hunsdiecker reaction (Imp.)

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755. An organic compound 'A' having molecular formula  $C_4H_8$  on treatment with dil.  $H_2SO_4$  gives B. B on treatment with conc. HCl and

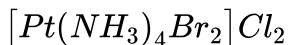
anhydrous  $ZnCl_2$  gives secondary halide C. Write all the reactions and identify A, B and C.

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756. Convert ethyl chloride into methyl chloride.

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757. Write the name of ionisation isomerism of following compound



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758. Write short notes on the following : Friedel-Craft's alkylation.

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**759.** Write short notes on the following : Anti-Markovnikov's rule.

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**760.** A hydrocarbon 'A' ( $C_4H_8$ ) is added with HBr in accordance with Markovnikov's rule to give compound 'B' which on hydrolysis with aqueous alkali forms tertiary alcohol 'C' ( $C_4H_{10}O$ ). Identify A, B and C.

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**761.** Write the following reactions

Convert chlorobenzene into phenol

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**762.** Write the equations for the steps in  $S_N1$  mechanism of the conversion of tert.butyl bromide into tert butyl alcohol.

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763. Haloarenes are less reactive towards nucleophilic substitution reactions than haloalkanes. Give a reason.

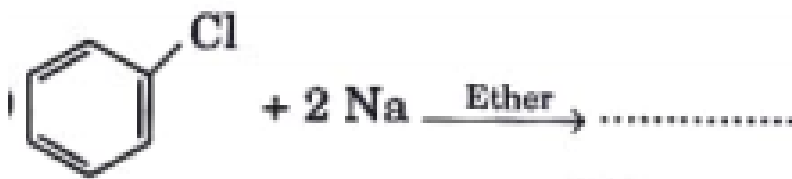
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764. Complete the following equation :



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765. Complete the following equation :



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**766.** Write the following reactions:

Finkelstein reaction

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**767.** Explain the following reaction :

Wurtz reaction.

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**768.** Write the following reactions :

Friedel Craft alkylation.

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**769.** Explain the following reactions :

Nitration of haloarenes.





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770. Differentiate between haloalkanes and haloarenes.



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



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772. How will you differentiate between  $S_{N1}$  and  $S_{N2}$  reaction mechanism ?



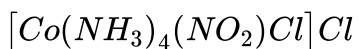
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**773.** Why the treatment of alkyl chloride with silver nitrite forms nitroalkane and with potassium nitrite forms Alkyl nitrite ?

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**774.** Write the name of ionisation isomerism of following compound



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**775.** D.D.T. is one of the most powerful insecticide which is effective against the mosquitoes that spread malaria. Mukesh's mother wanted to buy D.D.T. from the market to use at night to protect her family from mosquitoes. But Mukesh stopped his mother from purchasing D.D.T. What values are attached to suggestion of Mukesh ?

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**776.** Trichloromethane or chloroform is a colourless oily liquid with a peculiar smell. It is sparingly soluble in water. The vapour when inhaled cause unconsciousness and therefore, it is used as an anaesthetic. Answer the following question : What happens when chloroform is not protected from oxygen during its storage?

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**777.** Trichloromethane or chloroform is a colourless oily liquid with a peculiar smell. It is sparingly soluble in water. The vapour when inhaled cause unconsciousness and therefore, it is used as an anaesthetic. Answer the following question : Why is the use of chloroform as an anaesthetic has been reduced?

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**778.** Write the name of linkage isomers of following compound  
 $[Co(NH_3)_5(ONO)]Cl_2$



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**779.** Freons, chlorofluoro compounds of methane and ethane are stable, low boiling, non-toxic, non-inflammable and non-reactive compounds. These are extensively used in refrigerators and air conditioners. These are also used as propellants for aerosols and foams to spray out deodorants, cleansers, shaving creams and hair sprays. However, its use has been discouraged and restricted in some countries. As a student of science, What values are associated with this decision ?



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**780.** Freons, chlorofluoro compounds of methane and ethane are stable, low boiling, non-toxic, non-inflammable and non-reactive compounds. These are extensively used in refrigerators and air conditioners. These are also used as propellants for aerosols and foams to spray out deodorants, cleansers, shaving creams and hair sprays. However, its use has been

discouraged and restricted in some countries. As a student of science,

What is freon-12? How is it prepared?

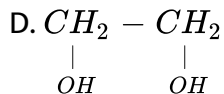
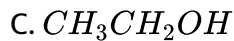
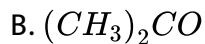
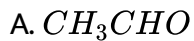
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**781.** For a given alkyl group, the boiling points of alkyl halides follow the order :

- A. RIgt RBr gt RCl
- B. RCl gt RBr gt RI
- C. RI gt RCl gt RBr
- D. RBr gt RI gt RCl.

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**782.** In the reaction :  $CH_3CHCl_2 \xrightarrow{aq. KOH} Intermediate \rightarrow X$ ,  $X$  is:



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783. Which of the following is not a chiral ?

A. 3-Methylhexane

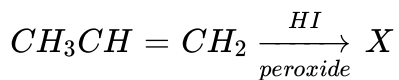
B. 2, 3-Dihydroxypropanoic acid

C. 2, 3-Dibromobutane

D. Butan-2-ol

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784. The major product X in the following reaction is:



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785. Freon-12 is commonly used as

A. an insecticide

B. a refrigerant

C. a solvent

D. fire extinguisher.



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**786.** Chlorobenzene can be obtained from benzene diazonium chloride by

- A. Gattermann's reaction
- B. Friedel Crafts reaction
- C. Wurtz reaction
- D. Fittig reaction.



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**787.** The IUPAC name of  $CH_3 - CH = CHCH_2Br$  is:

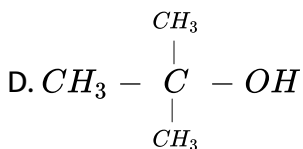
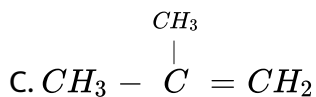
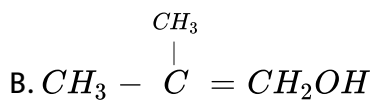
- A. 1-Bromobut-2-ene
- B. 1-Bromobut-3-ene

C. 2-Butene-1-bromide

D. 4-Bromobut-2-ene.

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788. The predominant product of hydrolysis of  $CH_3 - \overset{\overset{CH_3}{|}}{C} - Cl$  with aqueous KOH is -



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789. The reaction :  $RX + 2Na + RX \xrightarrow{\text{Dry ether}} R-R + 2NaX$  is called :

- A. Sandmeyer's reaction
- B. Fittig reaction
- C. Wurtz reaction
- D. Williamson's synthesis.



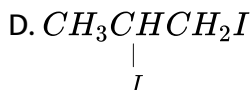
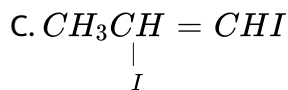
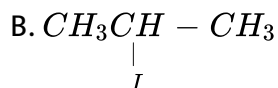
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790. In the reaction  $CH_3CH_2I \xrightarrow{\text{alc. KOH}} X \xrightarrow{Br_2} Y \xrightarrow{KCN} Z$ , Z is :

- A.  $CH_3CH_2CN$
- B.  $CNCH_2CH_2CN$
- C.  $BrCH_2CH_2CN$
- D.  $BrCH = CHCN$ .

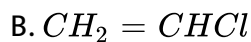
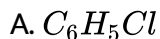
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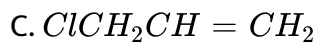
791. In the reaction  $CH_3\underset{\substack{| \\ Br}}{CH}CH_3 \xrightarrow{alc. KOH} X \xrightarrow[\text{Peroxide}]{HBr} Y \xrightarrow[\text{Acetone}]{NaI} Z$ , Z is



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





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**793.** The reaction of toluene with  $Cl_2$  in the presence of  $FeCl_3$  gives predominantly

A. Benzoyl chloride

B. m-chloro toluene

C. Benzyl chloride

D. o- and p-chlorotoluene.

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794. The reagents for the following conversions is/are:



- A. alcoholic KOH
- B.  $\text{Zn} \mid \text{CH}_3\text{OH}$
- C. aq. KOH followed by  $\text{NaNH}_2$
- D. alcoholic KOH followed by  $\text{NaNH}_2$ .

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795. During the conversion :  
 $\text{C}_6\text{H}_5\text{CH}_2\text{CH}_3 \xrightarrow{(a)} \text{X} \xrightarrow{(b)} \text{C}_6\text{H}_5\text{CH}=\text{CH}_2$  the reagents (a) and (b)  
are respectively

- A.  $\text{SOCl}_2$ , alc. KOH
- B.  $\text{Cl}_2 / h\nu$ ,  $\text{H}_2\text{O}$

C.  $SO_2Cl_2$ , aq. KOH

D.  $SO_2Cl_2$ , alc. KOH

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**796.** Which of the following will give ethanal with aqueous KOH?

A. Chloroacetic acid

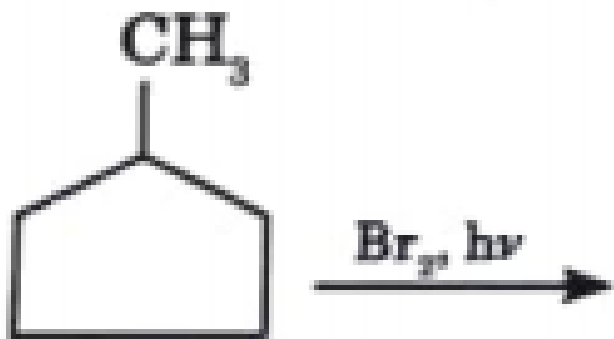
B. 1, 2-dichloroethane

C. 1, 1-Dichloroethane

D. ethyl chloride.

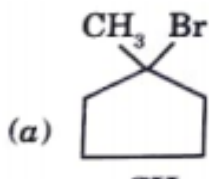
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797. In the following reaction:

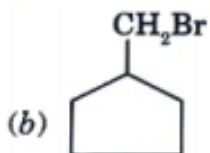


The major product obtained is

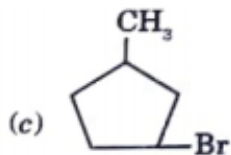
A.



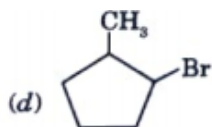
B.



C.



D.



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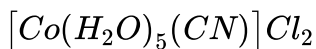
**798.** Which of the following are arranged in the decreasing order of dipole moment?





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799. Write the name of linkage isomers of following compound



- A.
- B.
- C.
- D.

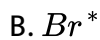


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800. In the addition of HBr to propene in the absence of Peroxides the first step involves the addition of :

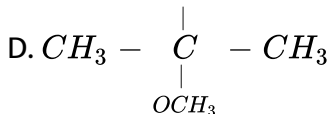
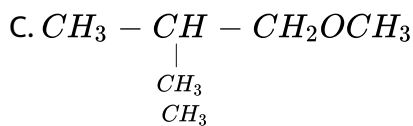
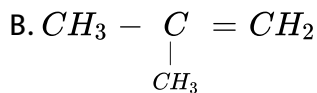
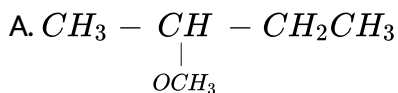
- A.  $H^*$





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801. The major product in the reaction is  $CH_3 - \underset{\underset{CH_3}{|}}{CH} - CH_2Br \xrightarrow[CH_3OH]{CH_3O^-}$



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802. In the reaction:



A and B are

respectively:

A. A is  $(\text{CH}_3)_2\text{C} = \text{CH}_2$  and B is  $(\text{CH}_3)_3\text{COC}_2\text{H}_5$

B. A is  $(\text{CH}_3)_3\text{COC}_2\text{H}_5$  and B is  $(\text{CH}_3)_2\text{C} = \text{CH}_2$

C. Both A and B are  $(\text{CH}_3)_2\text{C} = \text{CH}_2$

D. Both A and B are  $(\text{CH}_3)_3\text{COC}_2\text{H}_5$

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803. 2-Phenyl-2-chloropropane on treatment with alc. KOH gives mainly

A. (a) 2-Phenylpropene

B. (b) 3-Phenylpropene

C. (c) 1-Phenylpropan-2-ol

D. (d) 1-Phenylpropan-3-ol

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804. Express 3032 in roman numbers.

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805. C — X bond is strongest in:

A.  $CH_3Cl$

B.  $CH_3Br$

C.  $CH_3F$

D.  $CH_3I$





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**806.** Iodoethane reacts with sodium in ether to form the product

- A. Pentene
- B. Propyne
- C. Butene
- D. Butane



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**807.** When ethyl iodide and n-propyl iodide are allowed to react with sodium metal in ether, the number of alkanes that could be produced is

- A. only one
- B. two alkanes
- C. three alkanes

D. four alkanes.

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**808.** 1,3-Dibromopropane reacts with metallic zinc to form

A. Propene

B. Propane

C. Cyclopropane

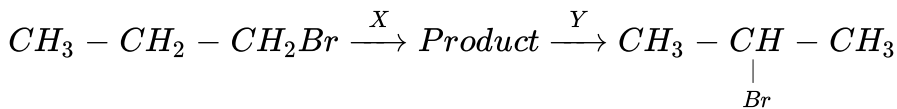
D. Hexane

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**809.** Express 2618 in roman numbers.

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**810.** Identify the set of reagents/reaction conditions 'X' and 'Y' in the following set of transformation :



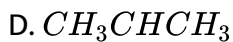
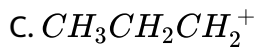
- A. X = dilute aqueous solution,  $20^\circ C$ , Y = HBr/acetic acid at  $20^\circ C$
- B. X = dilute aqueous NaOH,  $20^\circ C$ , Y = HBr/acetic acid at  $20^\circ C$
- C. X = dilute aqueous NaOH,  $20^\circ C$ , Y = Br /  $CHCl_3$ ,  $0^\circ C$
- D. X = concentrated alcoholic NaOH,  $80^\circ C$ , Y = Br /  $CHCl_3$ ,  $0^\circ C$



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**811.** The intermediate during the addition of HCl to propene in the presence of peroxide is

- A.  $CH_3CH_2CH_2^*$
- B.  $CH_3CH^+CH_3$



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**812.** 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.

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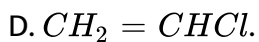
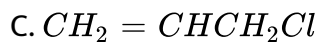
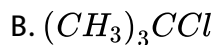
**813.** Express 2621 in roman numbers.





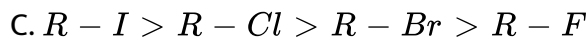
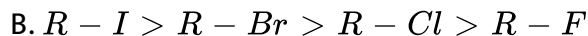
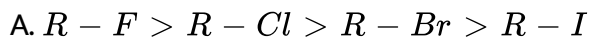
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814. Which of the following will be least reactive in nucleophilic substitution ?

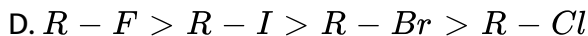


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815. The reactivity order of halides for dehydrohalogenation is







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**816.** Express 2622 in roman numbers.

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**817.** Express 2623 in roman numbers.

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**818.** Bottles containing  $C_6H_5I$  and  $C_6H_5CH_2I$  lost their original labels.

They were labelled as A and B for testing. A and B were separately taken in test tubes and boiled with NaOH solution. The end solution in each tube was made acidic with dilute  $HNO_3$  and some  $AgNO_3$  solution was

added. Substance B gave a yellow precipitate. Which one of the following statements is true for this experiment ?

A. Addition of  $HNO_3$  was unnecessary

B. A was  $C_6H_5I$

C. A was  $C_6H_5CH_2I$

D. B was  $C_6H_5I$



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**819.** Alkyl halides react with lithium dialkyl copper reagents to give

A. alkenes

B. alkyl copper halides

C. alkanes

D. alkenyl halides



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820. Express 2626 in roman numbers.



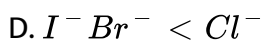
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821. Express 2625 in roman numbers.



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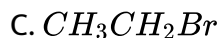
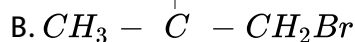
822. For the following : (A)  $I^-$  (B)  $Cl^-$  (C)  $Br^-$  The increasing order of nucleophilicity would be





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823. In a  $S_N2$  substitution reaction of the type  $R - Br + Cl^- \xrightarrow{DMF} R - Cl + Br^-$ , which one of the following has the highest reactivity rate ?



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824. Express 2627 in roman numbers.



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825. Express 2628 in roman numbers.



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826. Express 2630 in roman numbers.



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827. The reaction of toluene with  $Cl_2$  in the presence of  $FeCl_3$  gives X and the reaction in the presence of light gives Y. Thus, X and Y are:

- A. X = benzyl chloride, Y = m-chlorotoluene
- B. X = benzal chloride, Y = o-chlorotoluene
- C. X = m-chlorotoluene, Y = p-chlorotoluene
- D. X = o- and p-chlorotoluene, Y = trichloromethyl benzene



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**828.** Express 3075 in roman numbers.



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**829.** Express 2631 in roman numbers.



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**830.** Express 3076 in roman numbers.



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**831.** Express 2632 in roman numbers.



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**832.** Express 2633 in roman numbers.

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**833.** Express 2635 in roman numbers.

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**834.** Express 2636 in roman numbers.

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**835.** Express 2637 in roman numbers.

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**836.** Express 2638 in roman numbers.



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**837.** Choose the correct option from the following- Bordeaux mixture is the mixture of-

- A. Aluminium sulphate and quick lime
- B. Solution of copper sulphate and sodium hydroxide
- C. Quick lime and solution of copper sulphate
- D. Quick lime and water



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**838.** Express 2650 in roman numbers.



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**839.** Express 2651 in roman numbers.

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**840.** Express 2652 in roman numbers.

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**841.** Express 2653 in roman numbers.

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**842.** Express 2655 in roman numbers.

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**843.** Express 2656 in roman numbers.



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**844.** Express 2657 in roman numbers.



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**845.** Express 2658 in roman numbers.



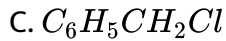
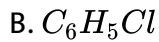
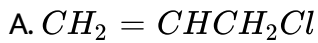
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**846.** What is the role of solution of copper sulphate in the formation of Bordo mix?



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**847.** The compound that does not undergo hydrolysis by  $S_N1$  mechanism is



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**848.** Express 2660 in roman numbers.

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**849.** Express 2661 in roman numbers.

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**850.** Express 2662 in roman numbers.



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**851.** Choose the correct option from the following- Ammonal is the mixture of-

- A. copper sulphate and aluminium powder
- B. ammonium nitrate and aluminium powder
- C. solution of copper sulphate and calcium oxide
- D. none of the above



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**852.** Express 2663 in roman numbers.



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**853.** Express 2665 in roman numbers.



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**854.** Choose the correct option from the following- Carbogen is the mixture of-

- A. oxygen and carbon dioxide
- B. carbon dioxide and nitrogen
- C. hydrogen and oxygen
- D. carbon monoxide and hydrogen



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**855.** Name the gases present in gobar gas?



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**856.** How many chiral compounds are possible on monochlorination of 2-methylbutane ?

A. 2

B. 4

C. 6

D. 8



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**857.** A solution of (-)-1-chloro-1-phenylethane in toluene racemises slowly in the presence of a small amount of  $SbCl_5$ , due to the formation of

A. free radical

B. carbanion

C. carbene

D. carbocation

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**858.** Express 2666 in roman numbers.

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**859.** Express 2667 in roman numbers.

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**860.** The synthesis of alkyl fluorides is best accomplished by

A. Finkelstein reaction

B. Swart's reaction

C. Free radical fluorination

D. Sandmeyer's reaction.

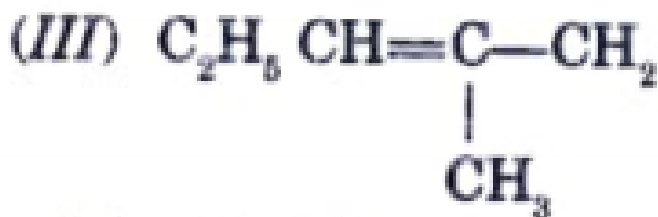
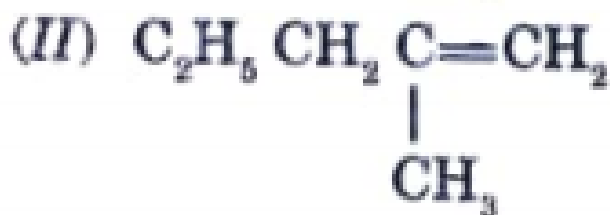
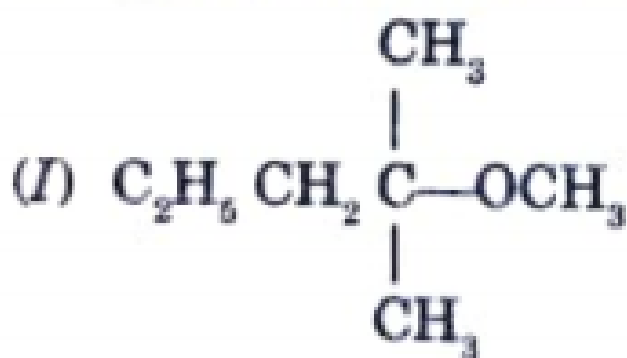
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**861.** Express 2668 in roman numbers.

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**862.** 2-Chloro-2-methylpentane on reaction with sodium methoxide in methanol yields





A. all of these

B. (I) and (III)

C. III only

D. I and II

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**863.** Express 2670 in roman numbers.

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**864.** Express 2671 in roman numbers.

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**865.** Express 2672 in roman numbers.

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**866.** When 3-phenylpropene reacts with HBr in the presence of peroxide, the major product formed is

A. 2-bromo-1-phenylpropane

B. 1, 2-dibromo-3-phenylpropane

C. 3-(o-bromophenyl)propene

D. 1-bromo-3-phenylpropane

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867. Express 2673 in roman numbers.

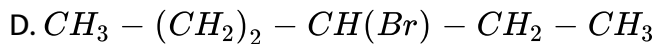
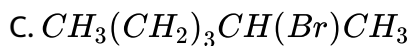
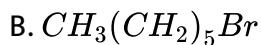
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868. Express 2675 in roman numbers.

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869. An alkyl bromide (X) reacts with sodium in ether to form 4, 5-diethyloctane. The compound 'X' is

A.  $CH_3(CH_2)_3Br$



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870. Express 2676 in roman numbers.

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871. Which one of the following halogen compounds is difficult to be hydrolysed by  $S_N1$  mechanism ?

A. Tertiary butyl chloride

B. Isopropyl chloride

C. Benzyl chloride

D. Chlorobenzene

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**872.** How many monochloro structural isomers are expected in free radical monochlorination of 2-methylbutane ?

A. 6

B. 3

C. 4

D. 5

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**873.** The arrangement of following compounds: (i) bromomethane (ii) bromoform (iii) chloromethane (iv) dibromomethane in the increasing

order of their boiling point is

- A. ivlt iilti ltii
- B. lti ltii ltiiltiv
- C. iiltiltivltii
- D. ii ltiiltiv



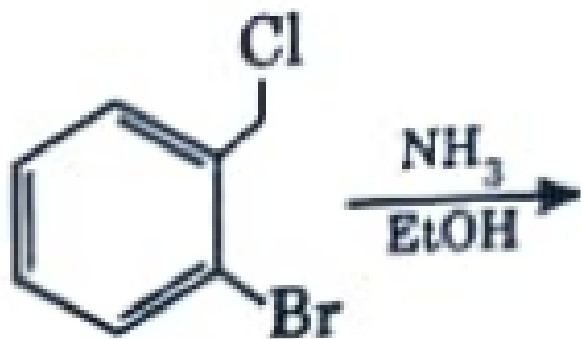
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**874.** The hydrolysis of optically active 2-bromobutane with aqueous NaOH results in the formation of

- A. (-)-butan-2-ol
- B. ( $\pm$ )-butan-2-ol
- C. (+)-butan-2-ol
- D. ( $\pm$ )-butan-1-ol



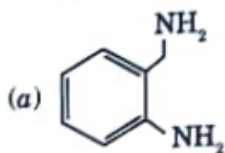
875.



The product

of the above reaction is

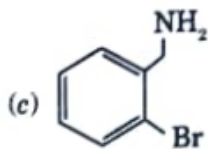
A.



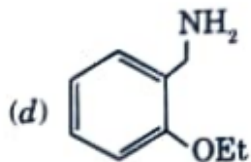
B.



C.



D.



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**876.** The compound which is not formed when a mixture of n-butyl bromide and ethyl bromide treated with sodium metal in presence of dry ether is:

A. Butane

B. Octane



C. Hexane

D. Ethane

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877. Some organic compounds are given in List I and their uses in List I.

Choose the correct matching.

<b>List I</b>	<b>List II</b>
(A) Triiodomethane	(i) solvent for alkaloids
(B) <i>p, p'</i> -Dichlorodiphenyltrichloroethane	(ii) propellant in aerosols
(C) Trichloromethane	(iii) antiseptic
(D) Dichloromethane	(iii) insecticide

A. (A) - (ii), (B) - (iv), (C) - (i), (D) - (iii)

B. (A) - (iii), (B) - (iv), (C) - (i), (D) - (ii)

C. (A) - (ii), (B) - (i), (C) - (iv), (D) - (iii)

D. (A) - (iii), (B) - (i), (C) - (iv), (D) - (ii)



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**878.** The total number of monochalogenated products formed by halogenation of 2, 4, 4-trimethylhexane is

- A. 5
- B. 7
- C. 6
- D. 8



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**879.** Which metal is present in brass alloy other than zinc?



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880. The reactivity order of halides for dehydrohalogenation is

A.  $\text{R-F} > \text{R-Cl} > \text{R-Br} > \text{R-I}$

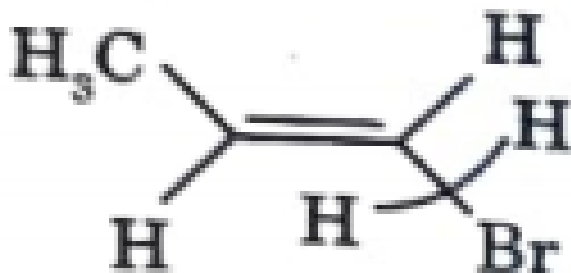
B.  $\text{R-I} > \text{R-Br} > \text{R-Cl} > \text{R-F}$

C.  $\text{R-I} > \text{R-Cl} > \text{R-Br} > \text{R-F}$

D.  $\text{R-F} > \text{R-I} > \text{R-Br} > \text{R-Cl}$

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881. IUPAC name of the compound



A. 1-bromobut-2-ene

B. 2-bromobut-2-ene

C. bromobutene

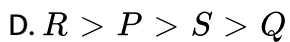
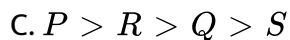
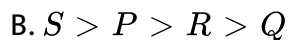
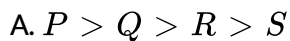
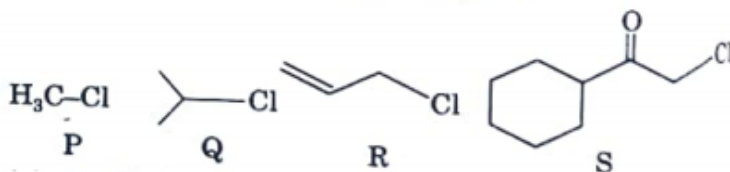
D. 1-bromobut-3-ene.

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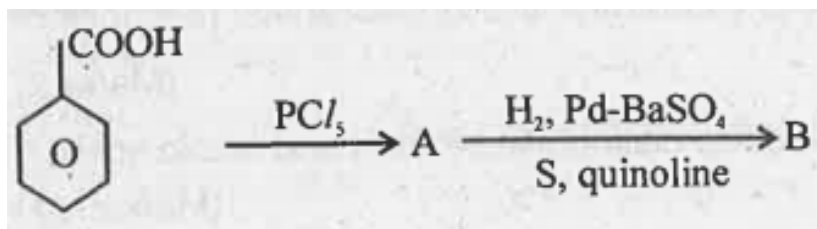
**882.** Replacement of Cl of chlorobenzene to give phenol requires drastic conditions, but Cl of 2, 4-dinitrochlorobenzene is readily replaced. This is because

- A.  $-NO_2$  group makes the ring electron rich at ortho and para positions
- B.  $-NO_2$  group withdraws electrons from meta position
- C.  $-NO_2$  donates electrons at meta position
- D.  $-NO_2$  withdraws electrons from ortho and para positions.

883. KI in acetone, undergoes  $S_N2$  reaction with each of P,Q,R and S. The rates of the reaction vary as



884. Complete the following:



A.



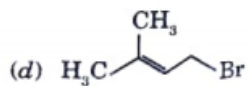
B.



C.



D.



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885. Draw the cis isomer of the following compound :  $[Pt(NH_3)_2Cl_2]$

A.

B.

C.

D.

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886. Which metal is present in bronze alloy other than tin?

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887. In the reaction :

$X \xrightarrow{I_2, NaOH}$  Iodoform + Sodium succinate, X can be

A. Pentane -2-one

B. Acetophenone

C. Hexane-2,5-dione

D. 4-keto pentanoic acid

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**888.** Benzyl chloride can be prepared from toluene by chlorination with

A.  $SO_2Cl_2$

B.  $SOCl_2$

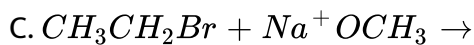
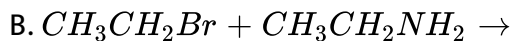
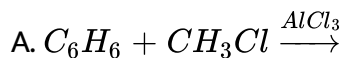
C.  $Cl_2, hv$

D. NaOCl.

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**889.** A new carbon-carbon bond formation is possible in the following reaction/reactions:



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**890.** The optically active compounds among the following are:

A. Lactic acid

B. 2-Bromo-1-chlorobutane

C. meso-tartaric acid

D. 2, 3-dihydroxypropanal

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891. Which of the following statements are correct ?

- A. Benzyl halides are more reactive than vinyl and aryl halides
- B. Vinyl halides are more reactive than alkyl halides
- C. Aryl halides are less reactive than alkyl halides
- D. Aryl halides are more reactive than benzyl halides

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892. Which of the following contain an aldehyde ?

A.



B.



D.



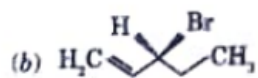
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893.  $\pm$  2-butanol is optically inactive

A.



B.



C.

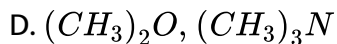
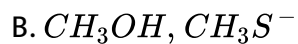
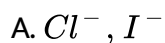


D.



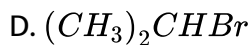
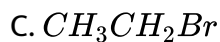
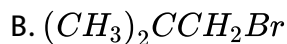
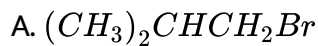
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**894.** Meiosis takes place in



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895. Which of the following is the least?



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896. Which of the following pairs represents anomers?

A. 1-bromo-1-methyl cyclohexane, cyclohexyl bromide

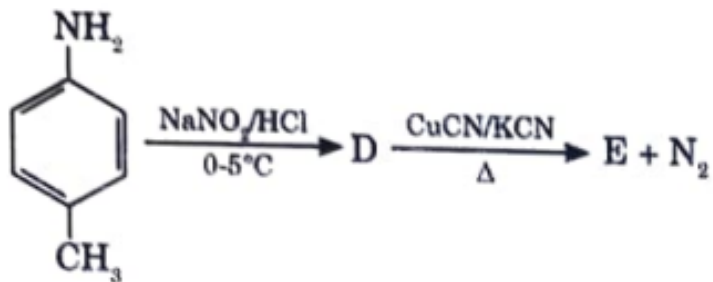
B. 1-iodo-2, 2-dimethyl propane, isopropyl iodide

C. 2, 2,-dimethyl-1-chlorobutane, 2-chloro butane

D. isopropyl bromide, 2-bromobutane



897. In the reaction,

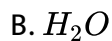


The product

(E) is

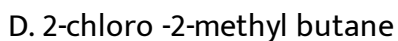
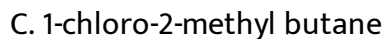
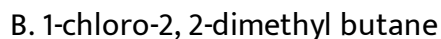
- A.  $(\text{CH}_3)_3\text{CBr}$
- B.  $\text{CH}_3\text{CH}_2\text{Br}$
- C.  $(\text{CH}_3\text{CH}_2)_2\text{CHBr}$
- D.  $\text{C}_6\text{H}_5\text{CH}_2\text{Br}$

898. Which of the following has magnesium?



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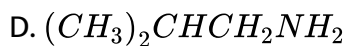
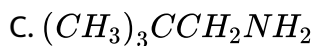
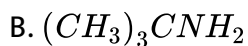
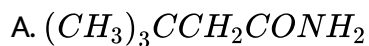
**899.** A chloro derivative (A) on treatment with zinc copper couple gives a hydrocarbon (B) with five carbon atoms. When A is dissolved in ether and treated with sodium 2, 2, 5, 5- tetramethylhexane is formed. What is the formula of the compound A ?





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900. The reaction of acidified  $KMnO_4$  with  $H_2O_2$  gives .



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901. Write the reaction of  $SO_2$  with  $Cl_2$

A. Gilman reaction

B. Mendius reaction



C. Grooves process

D. Swart's reaction

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**902.** The reaction of  $CHCl_3$  and alcoholic KOH with p-toluidine gives

A.  $S_N1$  mechanism

B.  $S_N2$  mechanism

C.  $E_1$  mechanism

D.  $E_2$  mechanism

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**903.** Express 2677 in roman numbers.

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904.  $S_N2$  reaction occurs with inversion of configuration/ racemisation.

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905. Addition of

$Br_2$  to ethene in

$CCl_4$  gives vic-dibromide.

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906. *Assertion* : For the reaction :  $RCl + NaOH(aq) \rightarrow ROH + NaCl$ , the rate of reaction is reduced, half when the concentration of RCl is reduced to to half cell.

*Reason* : The rate of reactions is represented by  $k[RCl]$  i.e., it is a first order reaction.

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

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908.  $S_N1$  /  $S_N2$  proceeds through the formation of a carbocation .

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909. Explain why aldehydes are more reactive than ketones towards nucleophilic addition reactions ?

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910. Which of the following is not an ambident nucleophile?

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911. In the reaction of p-chlorotoluene with  $KNH_2$  in liquid  $NH_3$  the major product is

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912. Why can aryl halides not be prepared by reaction of phenol with HCl in the presence of  $ZnCl_2$  ?

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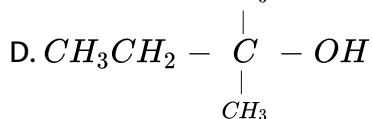
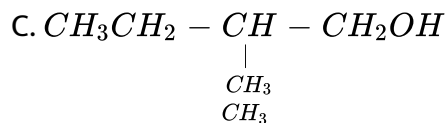
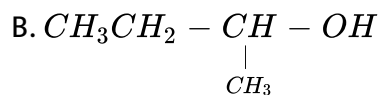
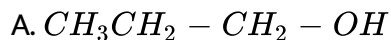
913. Write the IUPAC name of  $CH_3CH = CH - \underset{\underset{Br}{|}}{\overset{CH_3}{|}}{C} - CH_3$ .

- A. (A) gt (B) gt (C)
- B. (C) gt (B) gt (A)
- C. (B) gt (A) gt (C)
- D. (A) gt (C) gt (B)



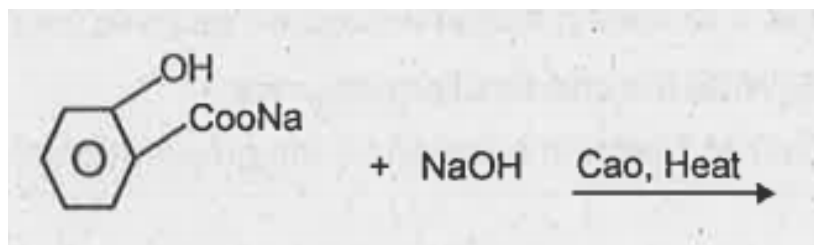
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914. Which of the following reagent cannot be used for preparing alkyl chloride from alcohol ?



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915. Complete the following reaction:-



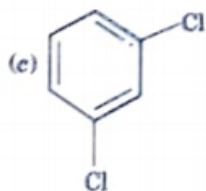
A.



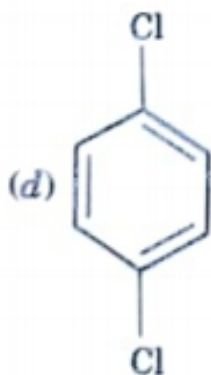
B.



C.



D.



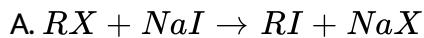
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916.  $SO_2$  reacts with  $Cl_2$  in the presence of sunlight to form

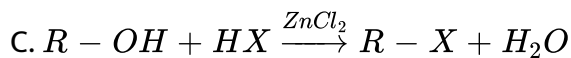
- A. Electrophilic elimination reaction
- B. Electrophilic substitution reaction
- C. Free radical addition reaction
- D. Nucleophilic substitution reaction

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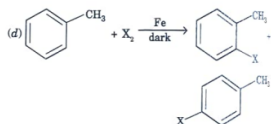
917. Which of the following is a displacement reaction?



B.

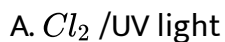


D.

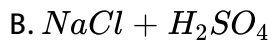


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918. What will you look for to identify the sex of the following?





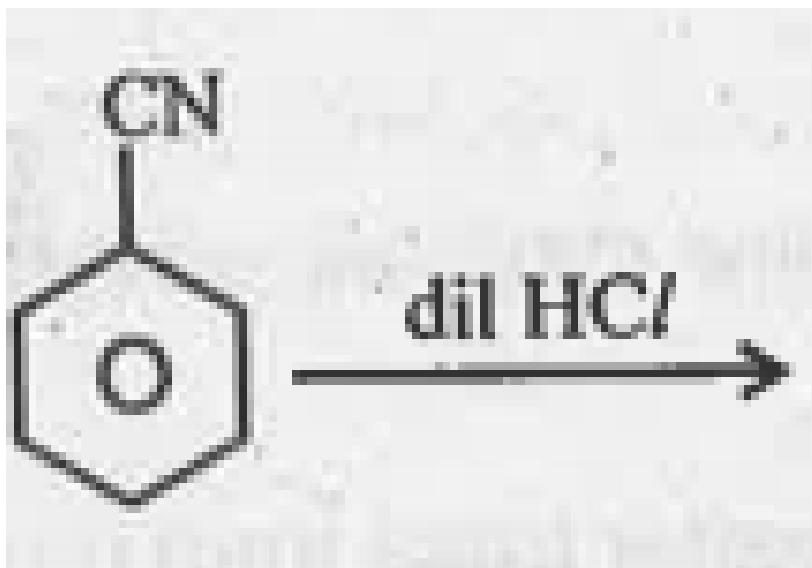


C.  $\text{Cl}_2$  gas in dark

D.  $\text{Cl}_2$  gas in the presence of iron in dark

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919. Complete the reaction



A. (i) It (ii) It (iii) It (iv)

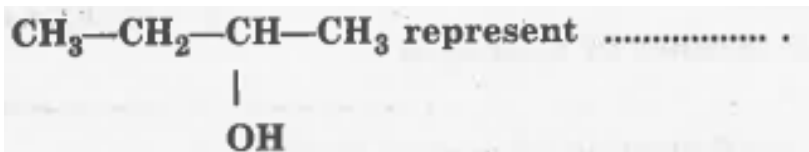
B. (i) It (iii) It (iv) It (ii)

C. (iv) It (iii) It (ii) It (i)

D. (ii) It (iv) It (iii) It (i)

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920. Fill in the blanks:



A. (ii) It (i) It (iii)

B. (i) It (ii) It (iii)

C. (iii) It (i) It (ii)

D. (iii) It (ii) It (i)

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921. Which of the following is an example of condominance?

- A. Dichloromethane
- B. 1,2-dichloroethane
- C. Ethylidene chloride
- D. Allyl chloride



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922. Write the names of the compounds

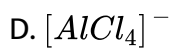


- A. Allyl
- B. Aryl
- C. Vinyl
- D. Secondary



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923. Which of the following is redox reaction ?



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924. Chromyl chloride is :

A. vic-dihalide

B. gem-dihalide

C. allylic halide

D. vinylic halide

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**925.** In alkaline hydrolysis of a tertiary alkyl halide by aqueous alkali, if concentration of alkali is doubled, then the reaction rate at constant temperature

A.  $S_N1$  reaction

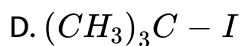
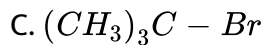
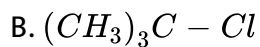
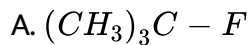
B.  $S_N2$  reaction

C.  $\alpha$ -Elimination

D. Racemisation

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926. Which of the following is most basic ?



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927. Which is the correct IUPAC name for  $CH_3 - \underset{\substack{| \\ C_2H_5}}{CH} - CH_2 - Br$  ?

A. 1-Bromo-2-ethylpropane

B. 1-Bromo-2-ethyl-2-methylethane

C. 1-Bromo-2-methylbutane

D. 2-Methyl-1-bromobutane

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**928.** What should be the correct IUPAC name for diethylbromomethane?

- A. 1-Bromo-1,1-diethylmethane
- B. 3-Bromopentane
- C. 1-Bromo-1-ethylpropane
- D. 1-Bromopentane

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**929.** Express 2678 in roman numbers.

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**930.** Express 2680 in roman numbers.

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931. Express 2681 in roman numbers.

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932. Reaction of  $C_6H_5CH_2$  Br with aqueous sodium hydroxide follows \_\_\_\_\_ .

A.  $S_N1$  mechanism

B.  $S_N2$  mechanism

C. Any of the above two depending upon the temperature of reaction

D. Saytzeff rule

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933. Express 2682 in roman numbers.





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**934.** Express 2683 in roman numbers.



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**935.** Express 2685 in roman numbers.



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**936.** Express 2686 in roman numbers.



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**937.** Express 2687 in roman numbers.



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**938.** Express 2688 in roman numbers.

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**939.** Express 2700 in roman numbers.

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**940.** Express 2701 in roman numbers.

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**941.** Express 2702 in roman numbers.

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**942.** Express 2703 in roman numbers.



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**943.** Express 2705 in roman numbers.



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**944.** Express 2706 in roman numbers.



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**945.** Express 2707 in roman numbers.



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**946.** Express 2708 in roman numbers.



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**947.** Express 2710 in roman numbers.

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**948.** Express 2711 in roman numbers.

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**949.** Express 2712 in roman numbers.

 [Watch Video Solution](#)

**950.** Express 2713 in roman numbers.

 [Watch Video Solution](#)

**951.** Express 2715 in roman numbers.



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**952.** Express 2716 in roman numbers.



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**953.** Express 2717 in roman numbers.



[Watch Video Solution](#)

**954.** Express 2718 in roman numbers.



[Watch Video Solution](#)

**955.** Express 2720 in roman numbers.



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**956.** Express 2721 in roman numbers.

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**957.** Express 2722 in roman numbers.

 [Watch Video Solution](#)

**958.** Express 2723 in roman numbers.

 [Watch Video Solution](#)

**959.** Express 2725 in roman numbers.

 [Watch Video Solution](#)

**960.** Express 2726 in roman numbers.



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**961.** Express 2727 in roman numbers.



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**962.** Express 2728 in roman numbers.



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**963.** Express 2730 in roman numbers.



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**964.** Express 2731 in roman numbers.



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965. Express 2732 in roman numbers.

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966. Express 2735 in roman numbers.

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967. How do the product differ when ethyl bromide reacts separately with KCN and AgCN ? Name the products.

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968. How would you differentiate between  $S_N1$  and  $S_N2$  mechanisms of substitution reactions ? Give one example of each.

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**969.** How will you convert ethyl bromide into propanoic acid ?

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**970.** How will you convert the following : 1-Bromopropane to 2 - bromopropane.

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**971.** How the following conversion can be carried out ?

tert-Butyl bromide to isobutylbromide.

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**972.** Explain why : Grignard reagent should be prepared under anhydrous conditions.

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973. Give two uses of iodoform.

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974. Write the structure and formula of D.D.T.

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975. Haloarenes are less reactive than haloalkanes due to

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976. Predict the alkenes that would be formed by the dehydrohalogenation of the following halides with sodium ethoxide and identify the major alkene : 2-Chloro-2-methylbutane.

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**977.** Predict the alkenes that would be formed by the dehydrohalogenation of the following halides with sodium ethoxide and identify the major alkene : 3-bromo-2,2,3-trimethylpentane

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

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