



CHEMISTRY

NCERT - NCERT CHEMISTRY(TELUGU)

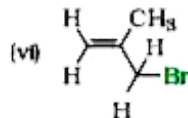
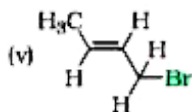
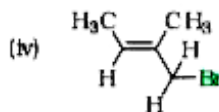
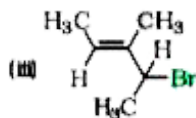
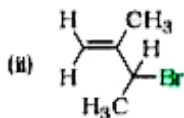
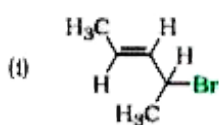
HALOALKANES AND HALOARENES

Example

1. 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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2. Write IUPAC names of the following:



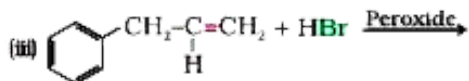
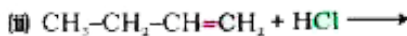
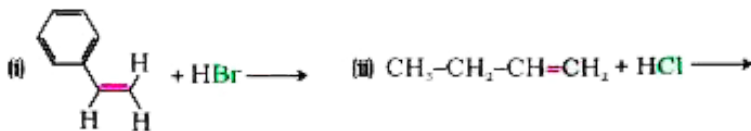
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3. Identify all the possible monochloro structural isomers expected to be formed on free radical monochlorination of $(CH_3)_2CHCH_2CH_3$.



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4. Write the products of the following reactions:





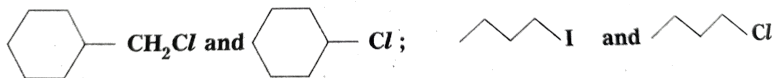
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5. Haloalkanes react with KCN to form alkyl cyanides as main product while AgCN forms isocyanides as the chief product . Explain .



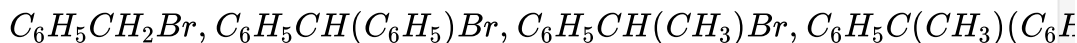
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6. In the following of halogen compounds , which would undergo S_N2 reaction faster ?



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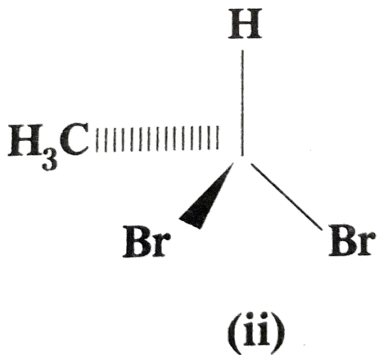
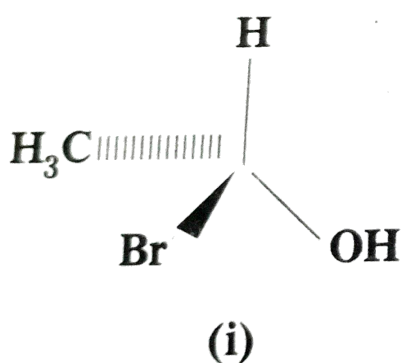
7. Predict the order of reactivity of the compounds in S_N1 and S_N2 reactions .



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8. Identify chiral molecules in each of the following pair of compounds .

(Wedge and Dash representation according to Inter I yr)



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



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Intext Question Intext Question

1. Write the structures of the compounds

(i) 2-chloro-3-methylpentan



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



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3. Write structures of different dihalogen derivatives of propane .



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4. Among the isomeric alkanes of molecular formula C_5H_{12} , identify the one that on photochemical chlorination yields

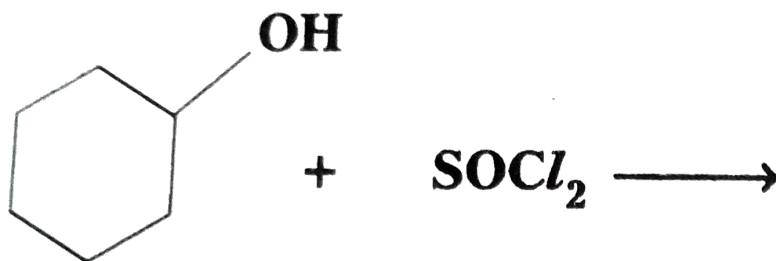
(i) A single monochloride.

(ii) Three isomeric monochlorides.

(iii) Four isomeric monochlorides.

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5. Draw the structure of major monohalo product in the reaction



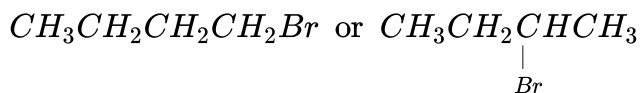
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6. Arrange the compound in order of increasing boiling points .

Bromomethane , Bromoform , Chloromethane , Dibromomethane .

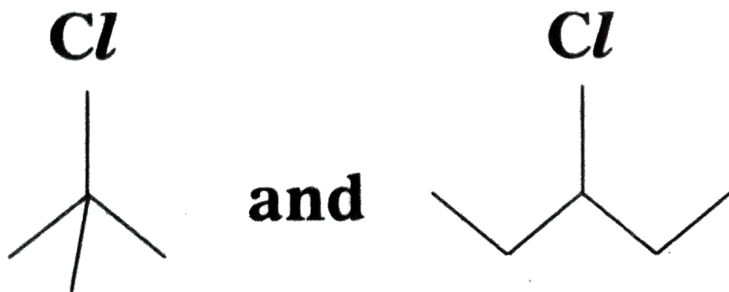
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7. Alkyl halide from the pair would react more rapidly by an S_N2 mechanism ? Explain your answer .



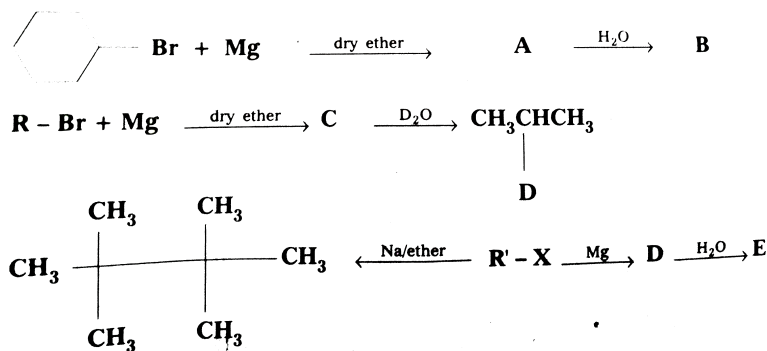
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8. In the pair of halogen compound , which compound undergoes S_N1 reaction ?



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9. Identify A, B, C, D, E, R and R^1 in the following :



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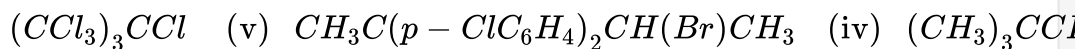
Exercises

1. Give the IUPAC names of the following compounds:

(i)



(iv)



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2. Write the structures of the following organic halides .

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



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

(i) CH_2Cl_2 (ii) $CHCl_3$ (iii) CCl_4



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4. A hydrocarbon C_5H_{10} does not react with chlorine in dark but gives a single monochloro-compound C_5H_9Cl in bright sunlight . Identify the hydrocarbon .



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5. Write the isomers of the compound having molecular formula C_4H_9Br

.



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6. Write the equations for the preparation of 1-iodobutane from

(i) 1-butanol (ii) 1-chlorobutane (iii) but-1-ene.



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7. What are ambident nucleophiles ?



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8. Which compound in each of the following pairs will react faster in S_N2

reaction with OH^- ?

i) CH_3Br (or) CH_3I

ii) $(CH_3)_3CCl$ (or) CH_3Cl



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9. Predict all the alkenes that would be formed by dehydrohalogenation of the following halides with sodium ethoxide in ethanol and identify the major alkene:

(i) 1-Bromo-1-methylcyclohexane

(ii) 2-Chloro-2-methylbutane

(iii) 2,2,3-Trimethyl-3-bromopentane.



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10. Explain how the conversions are carried out :

Ethanol to But-1-yne



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11. Explain why the dipole moment of chlorobenzene is lower than that of cyclohexylchloride .



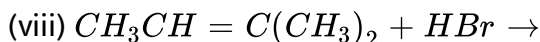
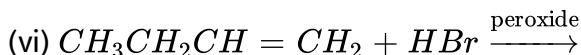
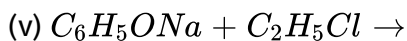
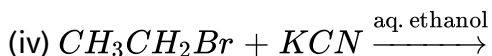
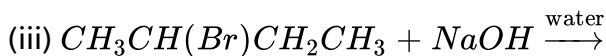
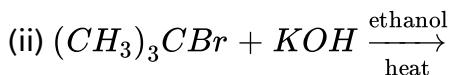
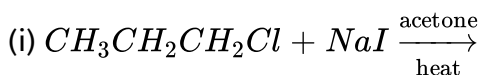
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12. Give the uses of freon 12, DDT, carbon tetrachloride and iodoform.



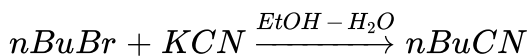
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13. Write the structure of the major organic product in each of the following reactions:



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14. Write the mechanism of the following reaction:

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15. Arrange the compounds of each set in order of reactivity towards S_N2 displacement:

(i) 2-Bromo-2-methylbutane, 1-Bromopentane, 2-Bromopentane

(ii) 1-Bromo-3-methylbutane, 2-Bromo-2-methylbutane, 3-Bromo-2-methylbutane

(iii) 1-Bromobutane, 1-Bromo-2,2-dimethylpropane, 1-Bromo-2-methylbutane, 1-Bromo-3-methylbutane

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



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17. p-Dichlorobenzene has higher m.p. and solubility than those of o- and m-isomers. Discuss.



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18. Explain how the conversions are carried out :

Ethanol to But-1-yne



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19. Treatment of alkyl halides with aq. KOH leads to the formation of alcohols, while presence of alc. KOH what products are formed ?

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20. Primary alkyl halide C_4H_9Br (a) 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 formed when n-butyl bromide is reacted with sodium. Give the structural formula of (a) and write the equations for all the reactions.

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21. What happen when
n-butylchloride is treated with alc. KOH.

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