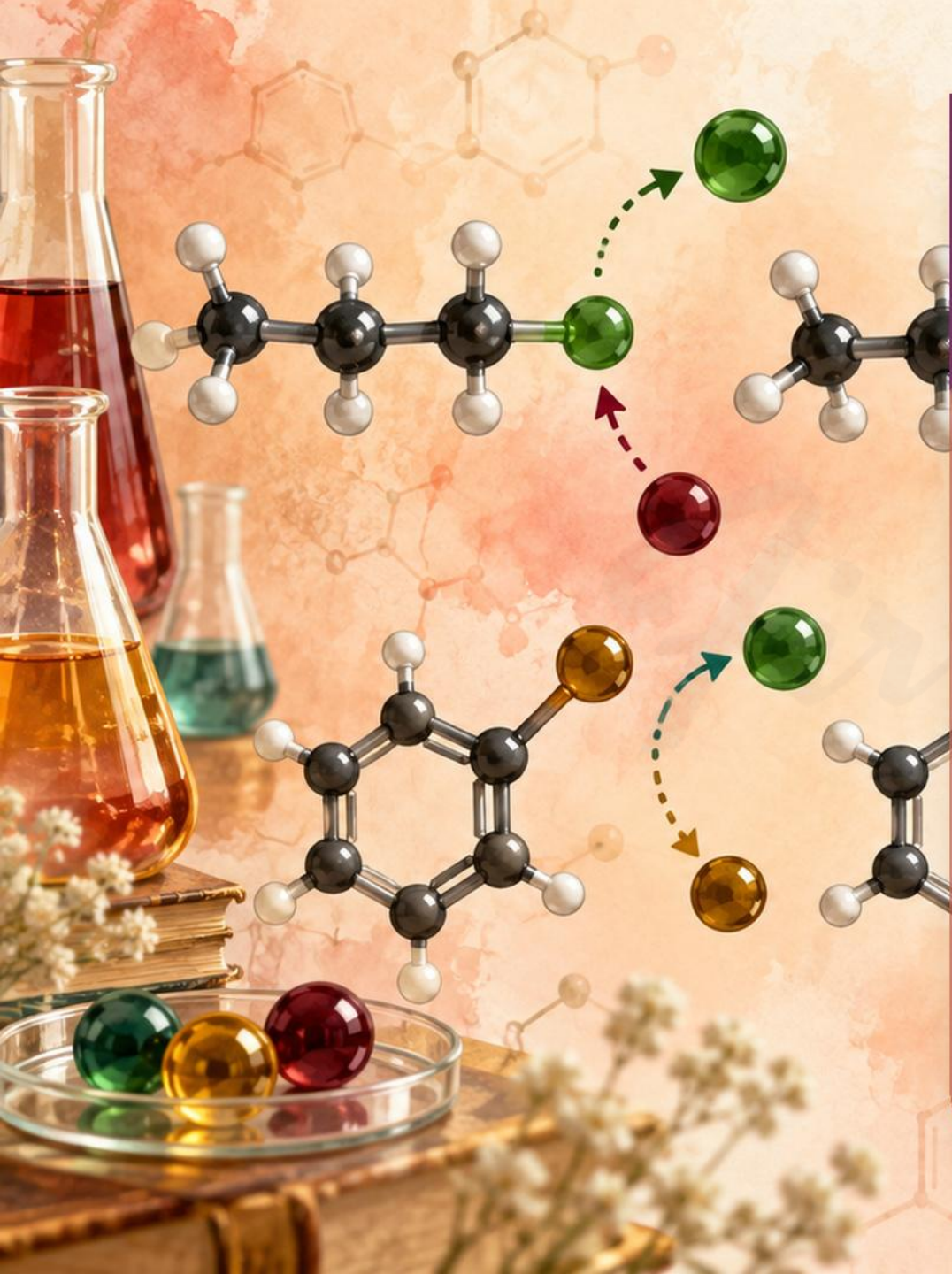




CHEMISTRY • CLASS 12

CHAPTER 6

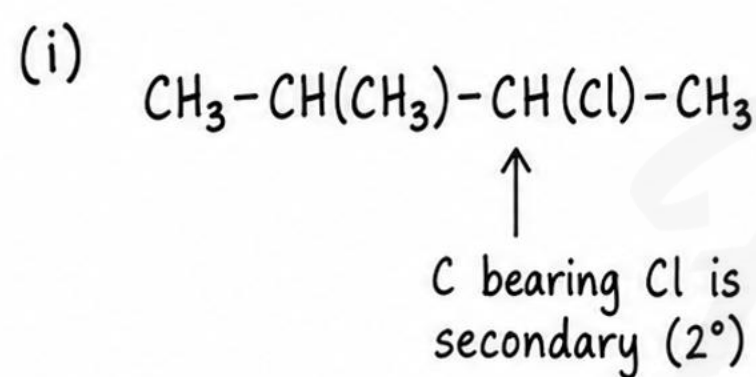
Haloalkanes and Haloarenes

NCERT SOLUTIONS

HALIDE NAMES AND TYPES: I-III

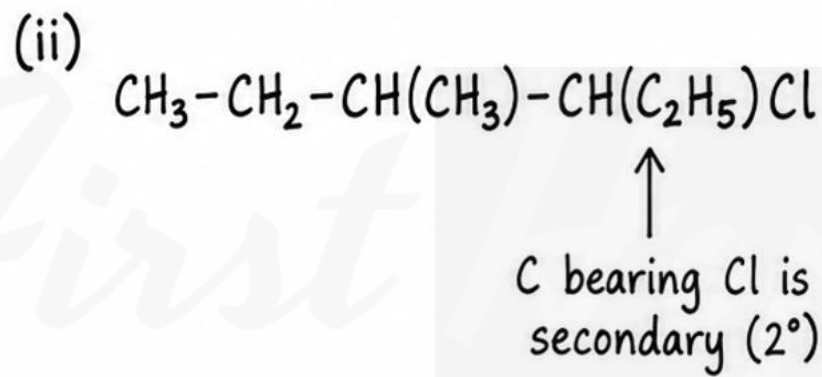
6.1 Name and classify (i) $(\text{CH}_3)_2\text{CHCH}(\text{Cl})\text{CH}_3$; (ii) $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}(\text{C}_2\text{H}_5)\text{Cl}$; (iii) $\text{CH}_3\text{CH}_2\text{C}(\text{CH}_3)_2\text{CH}_2\text{I}$.

Solution:



Name: 2-chloro-3-methylbutane

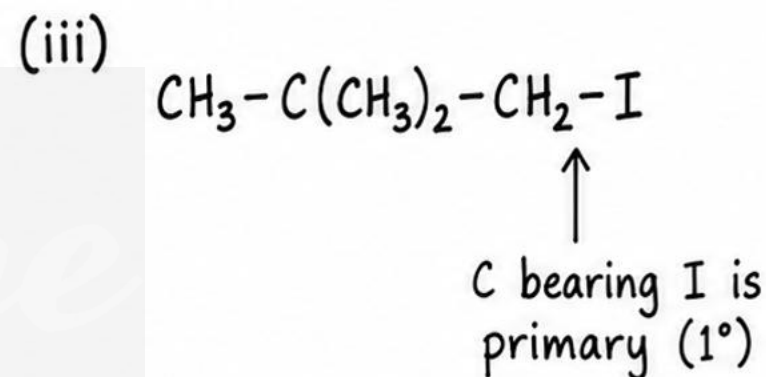
Type: secondary alkyl halide.



Name: 3-chloro-4-methylhexane

Type: secondary alkyl halide.

(Longest chain has 6 C;
Cl gets lower locant in tie.)



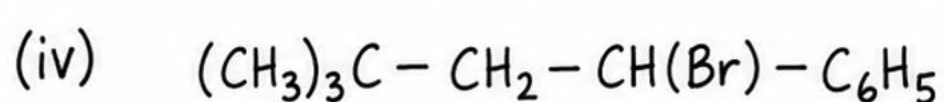
Name: 1-iodo-2,2-dimethylbutane

Type: primary alkyl halide.

HALIDE NAMES AND TYPES: IV–VI

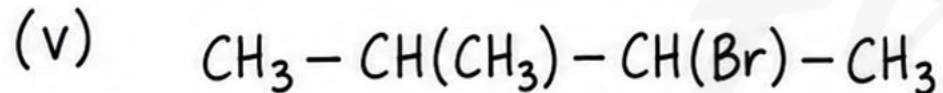
6.1 Name and classify (iv) $(\text{CH}_3)_3\text{CCH}_2\text{CH}(\text{Br})\text{C}_6\text{H}_5$; (v) $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}(\text{Br})\text{CH}_3$; (vi) $\text{CH}_3\text{C}(\text{C}_2\text{H}_5)_2\text{CH}_2\text{Br}$.

Solution:



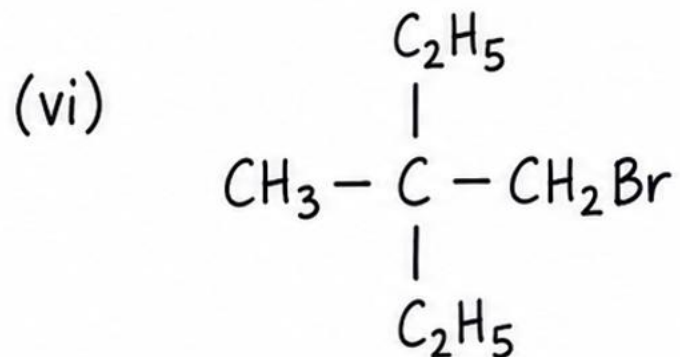
Name: 1-bromo-3,3-dimethyl-1-phenylbutane.

Classification: Secondary benzylic (benzyl) halide because the C-Br carbon directly touches phenyl and another C.



Name: 2-bromo-3-methylbutane.

Classification: Secondary alkyl halide.



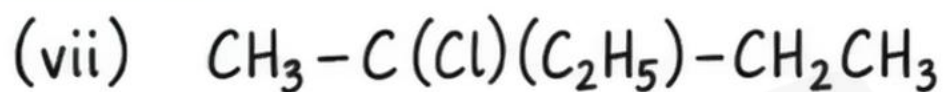
Name: 3-(bromomethyl)-3-methylpentane.

Classification: Primary alkyl halide. Longest carbon chain is pentane through the two ethyl arms, with CH_2Br as bromomethyl branch.

HALIDE NAMES AND TYPES: VII-IX.

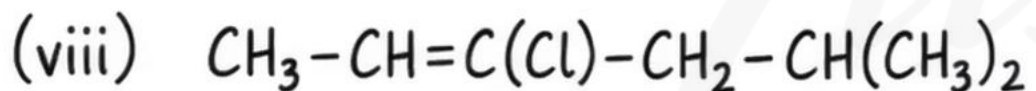
6.1 Name and classify (vii) $\text{CH}_3\text{C}(\text{Cl})(\text{C}_2\text{H}_5)\text{CH}_2\text{CH}_3$; (viii) $\text{CH}_3\text{CH}=\text{C}(\text{Cl})\text{CH}_2\text{CH}(\text{CH}_3)_2$; (ix) $\text{CH}_3\text{CH}=\text{CHC}(\text{Br})(\text{CH}_3)_2$.

Solution:



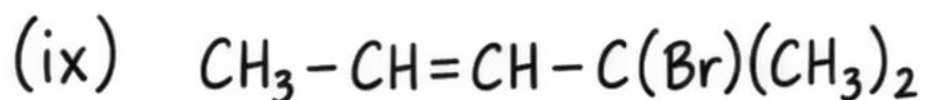
Name: 3-chloro-3-methylpentane.

Type: Tertiary alkyl halide because C bearing Cl is linked to three other carbons.



Name: 3-chloro-5-methylhex-2-ene.

Type: Vinylic halide, as Cl is bonded directly to an alkene carbon.



Name: 4-bromo-4-methylpent-2-ene.

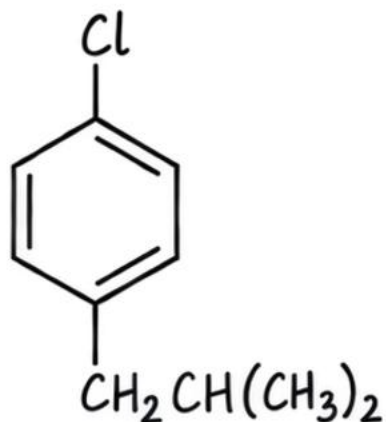
Type: Tertiary allylic halide, as C bearing Br is adjacent to the double bond and attached to three carbons.

HALIDE NAMES AND TYPES: X – XII

6.1 Name and classify (x) $p\text{-ClC}_6\text{H}_4\text{CH}_2\text{CH}(\text{CH}_3)_2$; (xi) $m\text{-ClCH}_2\text{C}_6\text{H}_4\text{CH}_2\text{C}(\text{CH}_3)_3$; (xii) $o\text{-BrC}_6\text{H}_4\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_3$.

Solution:

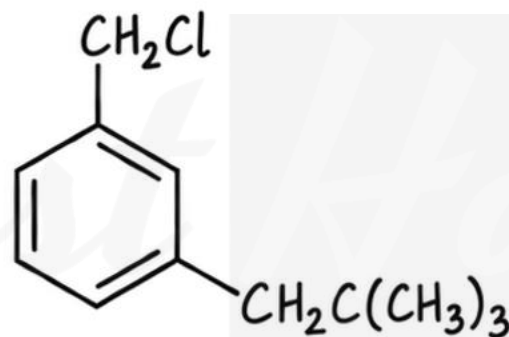
(x) $p\text{-ClC}_6\text{H}_4\text{CH}_2\text{CH}(\text{CH}_3)_2$



Name: 1-chloro-4-(2-methylpropyl)benzene

Type: Aryl halide
(Cl directly on aromatic ring).

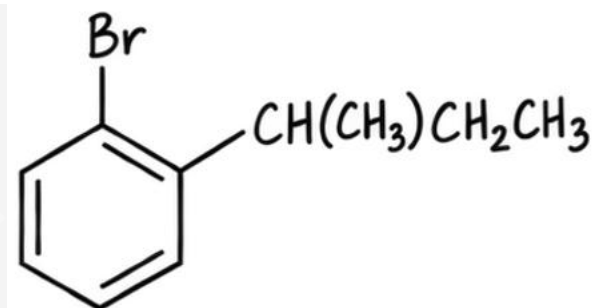
(xi) $m\text{-ClCH}_2\text{C}_6\text{H}_4\text{CH}_2\text{C}(\text{CH}_3)_3$



Name: 1-(chloromethyl)-3-(2,2-dimethylpropyl)benzene

Type: Primary benzylic halide
(Cl on CH_2 directly next to ring);
meta substituents.

(xii) $o\text{-BrC}_6\text{H}_4\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_3$



Name: 1-bromo-2-(butan-2-yl)benzene

Type: Aryl halide
(Br directly on aromatic ring),
ortho substituents.



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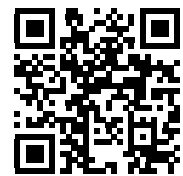


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