Org. Chem. Concepts Summary

Haloalkanes and haloarenes Fill in the blanks

Scan for key

1. Haloalkanes are organic compounds containing at least one carbon-halogen bond, where the halogen can be _____.
2. In haloalkanes, the carbon atom bonded to the halogen is typically sp^3 hybridized, resulting in a _____ shape.
3. The general formula for haloalkanes is R-X, where R represents a _____ group and X represents a halogen atom.
4. Halogen atoms commonly found in haloalkanes include _____, bromine, and iodine.
5. Haloalkanes can undergo nucleophilic substitution reactions, where the halogen atom is replaced by a _____.
6. Haloalkanes can also undergo elimination reactions, where a halogen atom is removed along with an adjacent _____ atom to form a double bond.
7. Haloarenes are a class of organic compounds where a halogen atom is directly bonded to a _____ ring.
8. The simplest haloarene is _____, which contains a single chlorine atom bonded to a benzene ring.
9. In haloarenes, the carbon atoms of the benzene ring are typically sp^2 hybridized, resulting in a planar _____.
10. Haloarenes undergo similar substitution reactions to haloalkanes, such as nucleophilic aromatic substitution, where a halogen atom is replaced by a _____ group.
11. Haloarenes are less reactive towards nucleophilic substitution compared to haloalkanes due to the _____ effect.
12. A common method for preparing haloarenes is by treating a benzene ring with a halogenating agent such as _____.
13. The reactivity of haloalkanes and haloarenes can be influenced by the nature of the halogen atom, with _____ being the most reactive.
14. The boiling points of haloalkanes generally increase with increasing _____, due to increased London dispersion forces.
15. Haloalkanes are often used as solvents, particularly _____, due to their ability to dissolve both polar and nonpolar substances.
16. Haloalkanes can undergo radical reactions, where a halogen atom is replaced by a _____ radical.
17. Haloarenes are important intermediates in the synthesis of various compounds, including pharmaceuticals and _____.
18. Haloarenes can undergo electrophilic aromatic substitution reactions, where an electrophile replaces a hydrogen atom on the benzene ring, leading to the formation of a _____ compound.

19. The relative reactivity of haloarenes in electrophilic aromatic substitution reactions can be influenced by _____ groups attached to the benzene ring.
20. Haloalkanes and haloarenes are widely used in organic synthesis due to their versatility and ability to serve as _____ building blocks.

1. Fluorine, chlorine, bromine, or iodine.
2. Tetrahedral shape.
3. Alkyl.
4. Fluorine, chlorine, bromine, and iodine.
5. Nucleophile.
6. Hydrogen atom.
7. Aromatic ring.
8. Chlorobenzene.
9. Planar structure.
10. Nucleophilic group.
11. Resonance stabilization provided by the aromatic ring.
12. Chlorine or bromine.
13. Fluorine.
14. Molecular size.
15. Chloroform and carbon tetrachloride.
16. Radical.
17. Pharmaceuticals and agrochemicals.
18. Substituted compound.
19. Substituent groups.
20. Building blocks.