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.