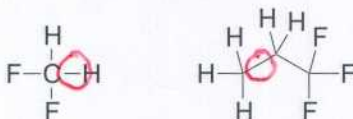


1) In a typical fluoroalkane, the bond between which two atoms is generally the weakest?

C-C

2-3) Circle the weakest sigma bond in each molecule:



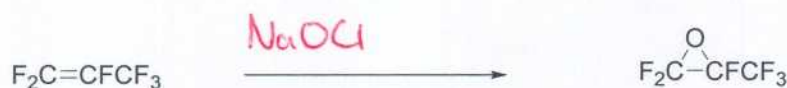
4-8) C_4F_{10} has a molecular weight over four times that of C_4H_{10} , yet their boiling points are less than $1^\circ C$ different – why?

The increase in molecular weight for C_4F_{10} (which should increase the b.pt.) is offset by the decrease in intermolecular bonding forces (lowers b.pt.).

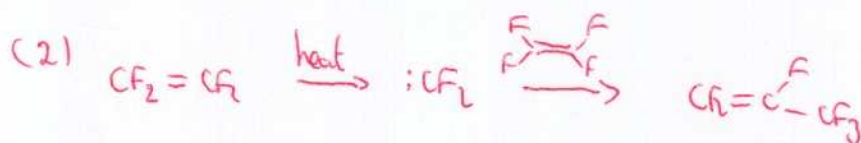
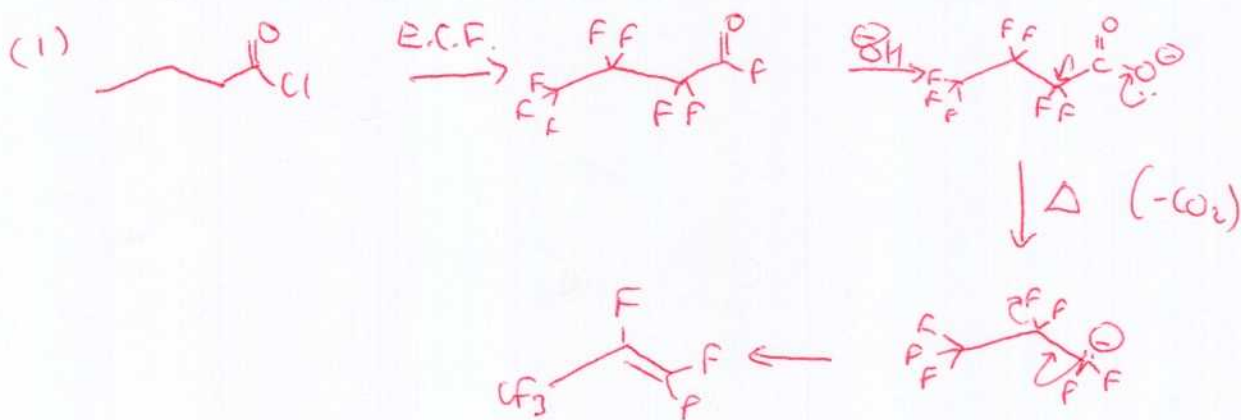
9) Perfluoroalkanes undergo usually only one type of reaction. Name it.

Reductive Defluorination

10-12) Draw in the required reagents:



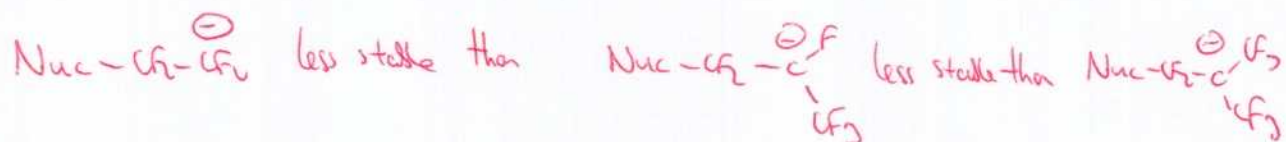
13-15) Outline one way to prepare large amounts of hexafluoropropene.



16-20) Explain the following reactivity order of fluoroalkenes with nucleophiles:



It can be related to their corresponding intermediates (and approximately to their transition states) for nucleophilic attack.



Since the fluoroalkyl group is electron withdrawing & stabilizes the -ve charge, attack occurs with orientation to yield the most stable anion.