

1) Does fluorine gas occur naturally?

No

2) Where does the name 'fluorine' come from?

From the Latin "FLUERE" (to flow) since fluorspar has good flowing abilities

3) What is the biggest problem with using elemental fluorine as a reagent for converting C-H to C-F?

Very Exothermic.

4-5) Give two ways to overcome this problem.

• Use dilute F₂ gas (1% F₂/N₂)

• Use partially fluorinated substrates.

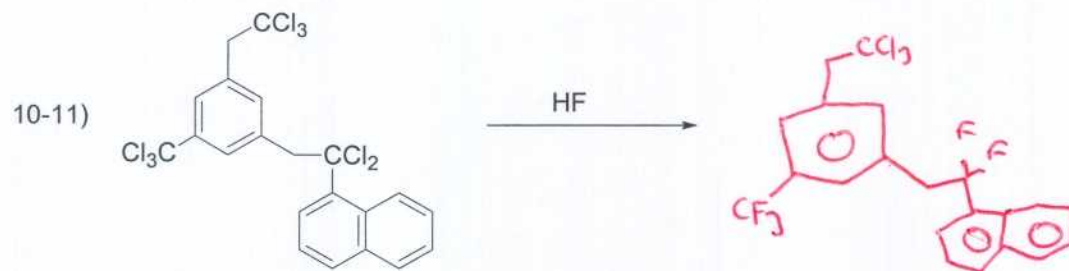
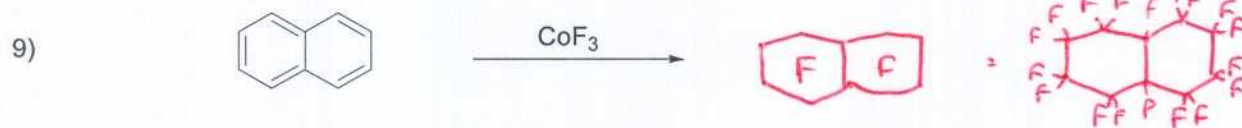
6) How is elemental fluorine gas produced industrially?

Electrolysis of HF (actually KF.HF in HF).

7) Which are generally denser – hydrocarbons or perfluorocarbons?

Perfluorocarbons

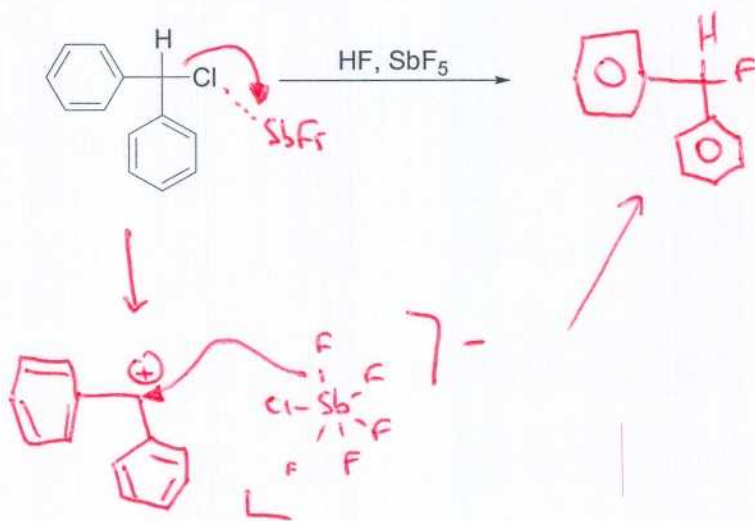
8-11) Give the products:



12) What is an "aprotic" solvent?

Solvent without acidic hydrogens

13-16) Give the product and mechanism for the following reaction.



17-20) Write the mechanism for this oxidative fluorination by Cobalt trifluoride.

