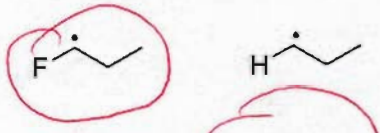
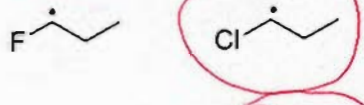
2006 Fluorocarbons Quiz #4 **20 points** NAME: PROMO TED.

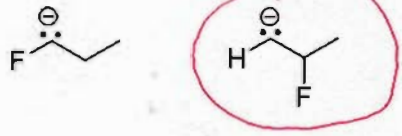
1-10) Circle the more stable situation in the following pairs:

a) 

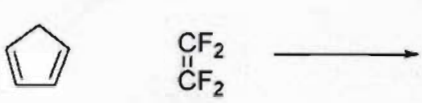
b) 

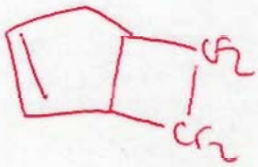
c) 

d) 

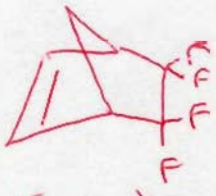
e) 

11-12) Provide the two products (total) that are produced when these reagents undergo cycloaddition.





(2+2)



(4+2)

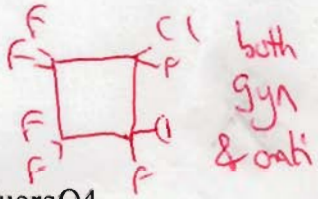
13) Provide the product.

$H_2C{=}CFH \xrightarrow[\text{Peroxides}]{\text{H-Br}}$ $Br-CH_2-CFH_2$

$ROOR \rightarrow 2\,RO\cdot \xrightarrow{H\text{-}Br} Br\cdot \rightarrow Br-CH_2-\dot{C}FH \xrightarrow{H\text{-}Br}$

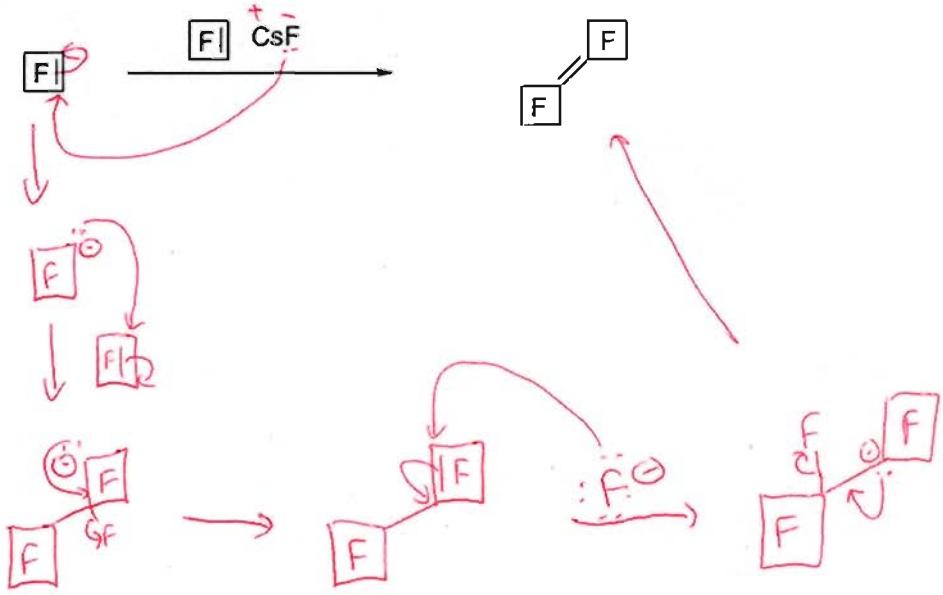
14) Provide the product.

$2\ F_2C{=}CFCl \xrightarrow{\text{heat}}$



both gyn & anti

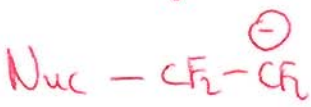
15-17) Write the mechanism for the following fluoride ion promoted reaction.



18-20) Explain why HFP is more reactive towards nucleophiles than TFE.

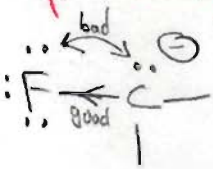
less reactive----------more reactive

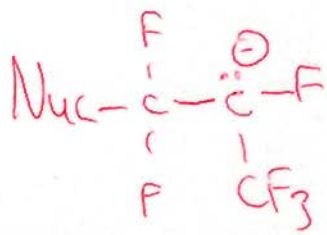
$CF_2{=}CF_2$ < $CF_2{=}CFCF_3$



This anion is not as stable as the other. It has two α Fluorines which are destabilizing to a -ve charge, but it does have two β stabilizing fluorines.

αF = destabilizing





This anion is much more stable due to fact that it has 5 β Fluorines and only one α Fluorine.

β Fluorines are stabilizing to -ve charge since they are strongly electron withdrawing

βF