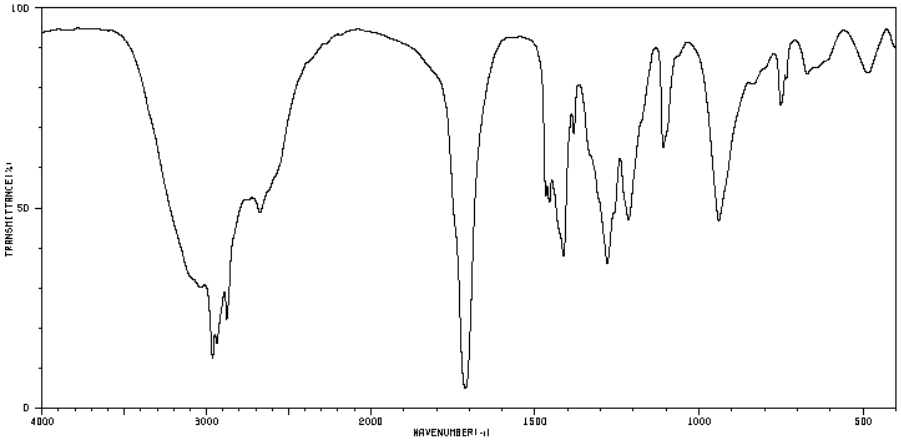
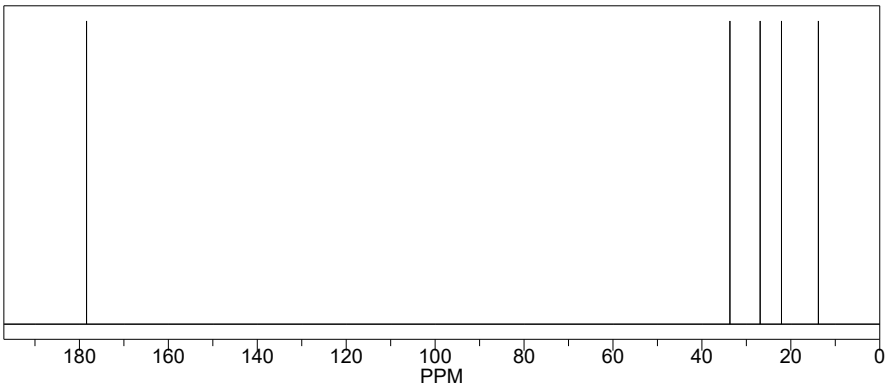
$C_5H_{10}O_2$

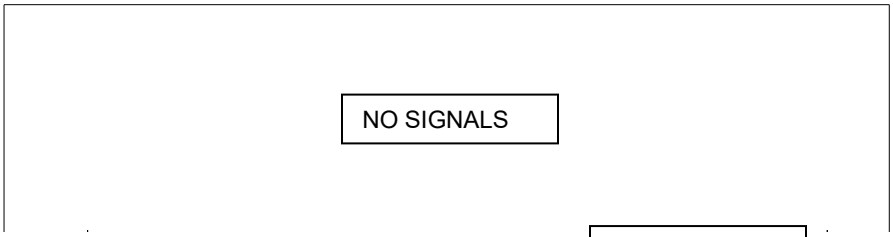


13C NMR

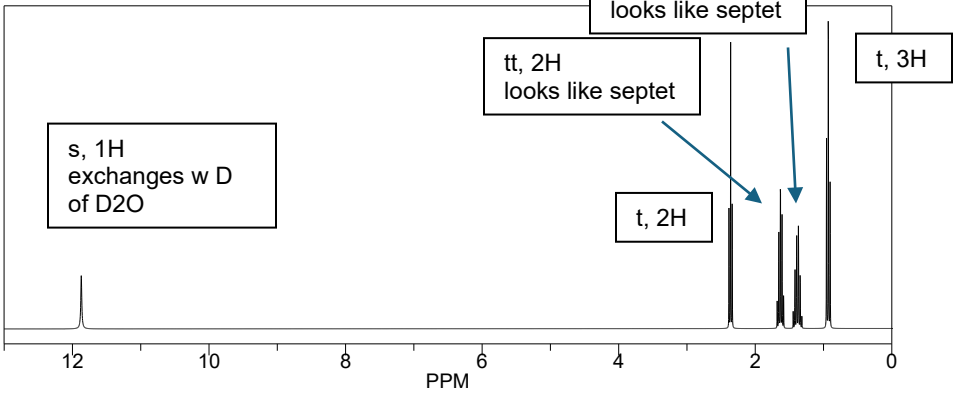


DEPT 135

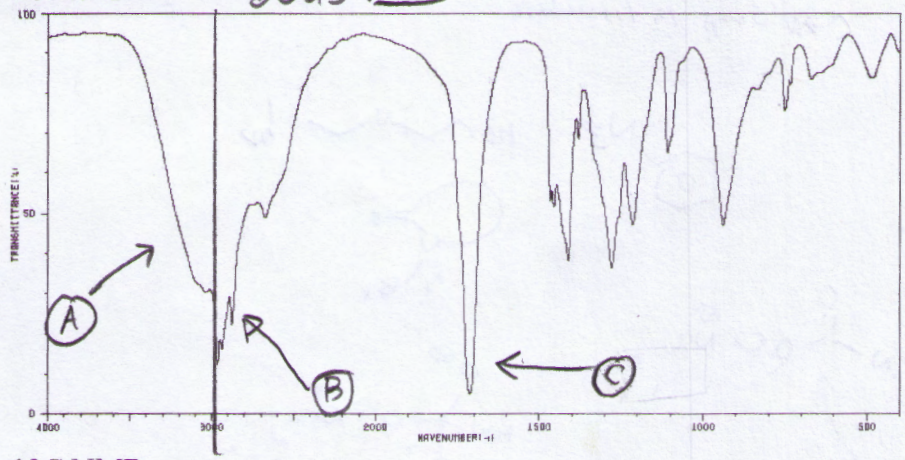
DEPT 90



1H NMR



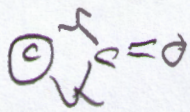
$C_5H_{10}O_2$ Dous 1



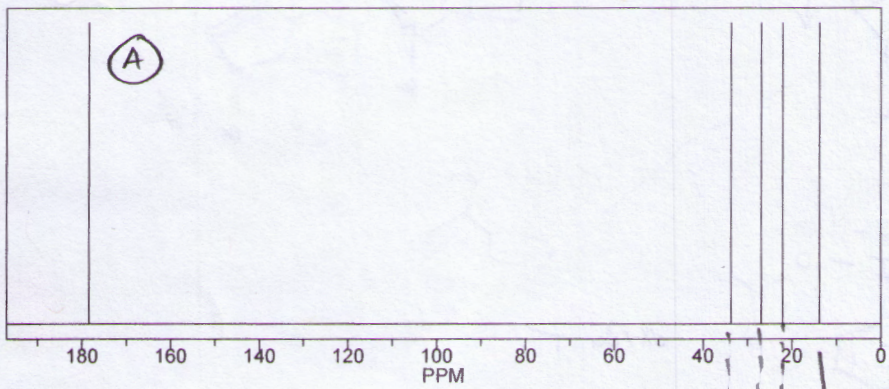
Describe IR stretch

(A) }-OH str.

(B) sp^3 C-H stretches

(C) 

13C NMR



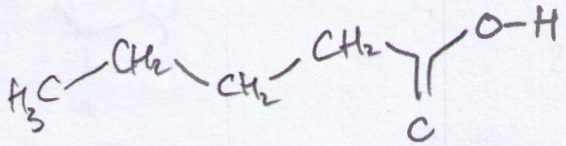
The number of carbon sigs compared to the MF indicates? no symm.

Identify the ^{13}C carbon in the molecule corresponding to (A)

C=O

DEPT 135

these would be negative in DEPT 135



CH_3 or ~~OH~~

DEPT 90

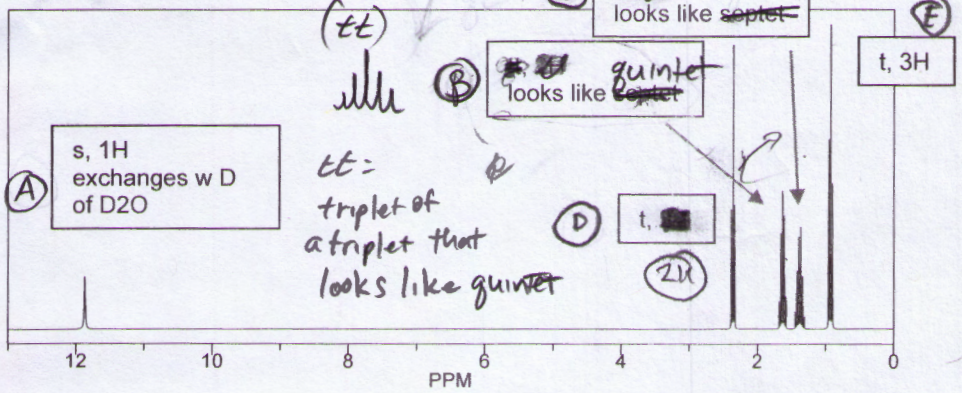
Implies? NO OH

NO SIGNALS

(8t) quartet of a triplet that looks like a sextet

sextet

1H NMR



tt: triplet of a triplet that looks like quintet

CIRCLE Observed H

Describe by showing connects that yield multiplicities

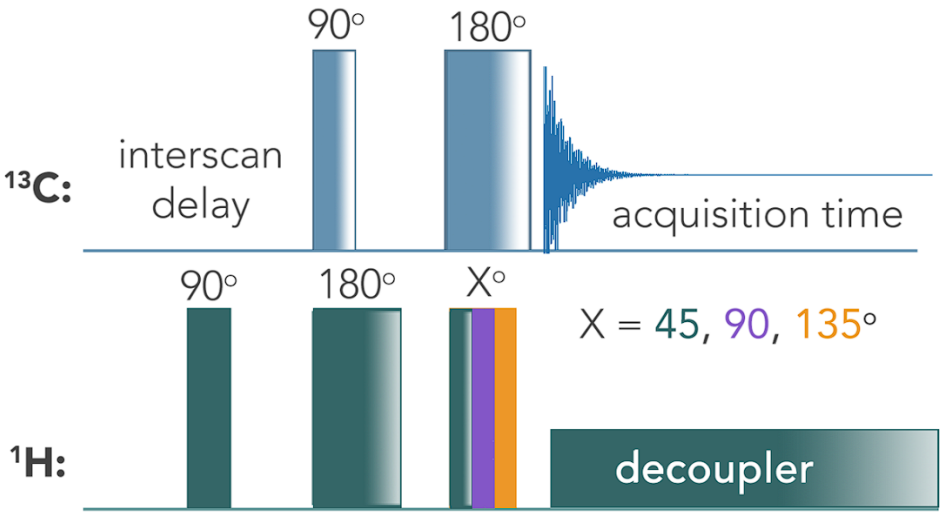
(A) }O-H

(B) $H_2C-CH_2-CH_2$

(C) $H_3C-CH_2-CH_2$

(D) H_2C-CH_2

(E) H_3C-CH_2



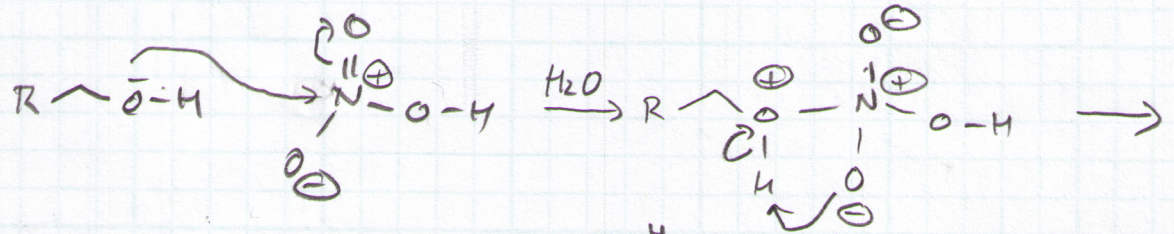
The resultant phase of each resonance then depends on: 1) this tip angle 2) the number of protons attached to the carbon that gives rise to a specific resonance.

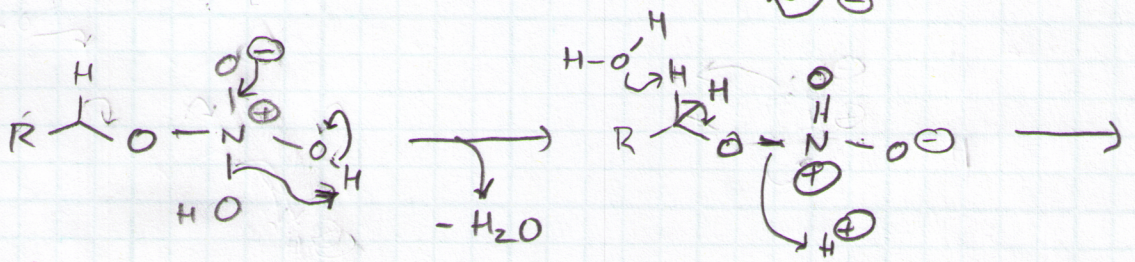
So what is it exactly that we observe? Well, DEPT-45 leaves all resonances with a positive phase (so pretty similar to a basic 1D except that due to polarization transfer, you can get the spectrum much faster – with the exception of quaternary carbons). DEPT-90 only shows CH, and DEPT-135 shows CH/CH_3 with a positive phase and CH_2 with a negative one (Caution – be careful with DEPT-135 phasing!!)

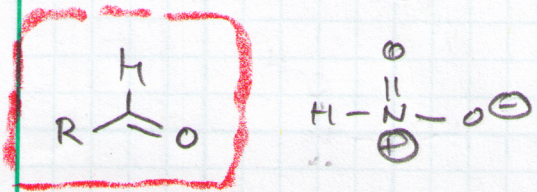
https://www.nanalysis.com/nmready-blog/2015/11/19/dept-a-tool-for-13c-peak-assignments

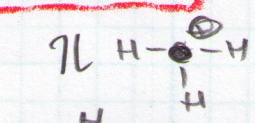
More about DEPT Experiments. This process involves manipulating the directions of the vector tensors for the 1H and 13C nuclei in a strong external magnet field with radio frequency pulses oriented at a particular angle. These variable angled pulses affect C, CH, CH2, and CH3 13C frequencies differently. DEPT 135 makes CH/CH3 signals positive and CH2 negative and DEPT 90 shows only CH positive signals, while DEPT 45 shows only quaternary C as positive.

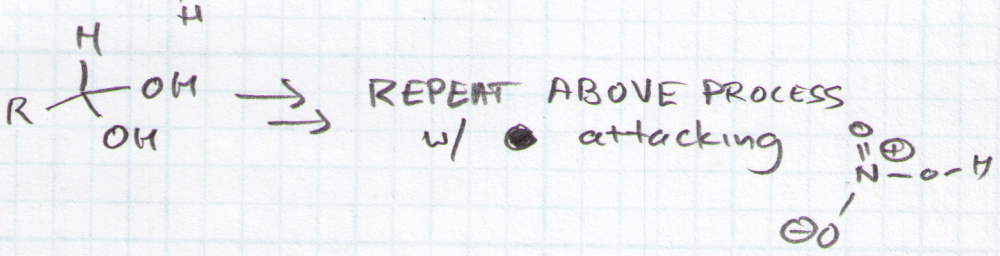
HNO_3 oxidation's mechanism is virtually similar to that with CrO_3



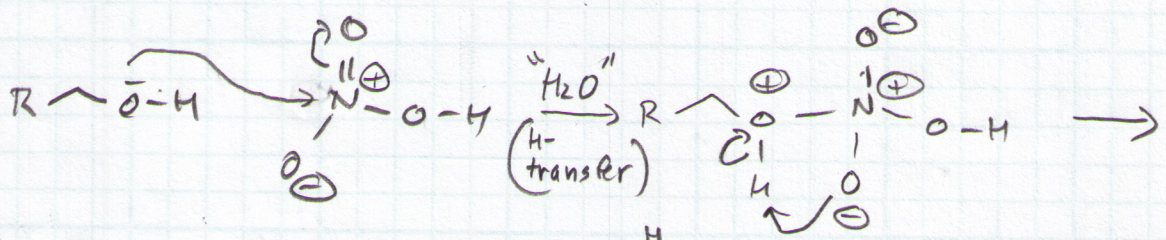


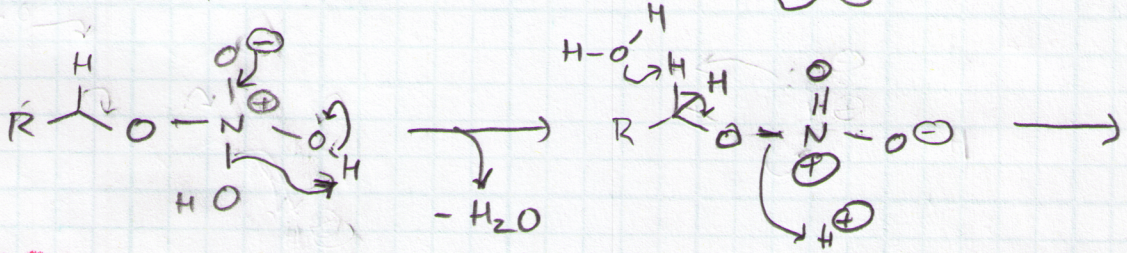


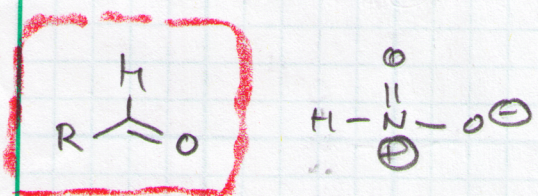


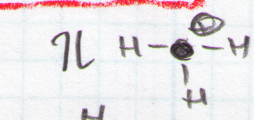


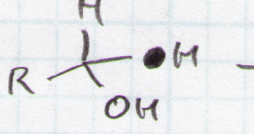
HNO_3 oxidation: mechanism is virtually similar to that with CrO_3



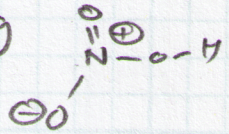




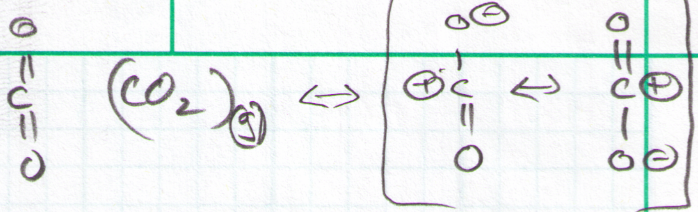


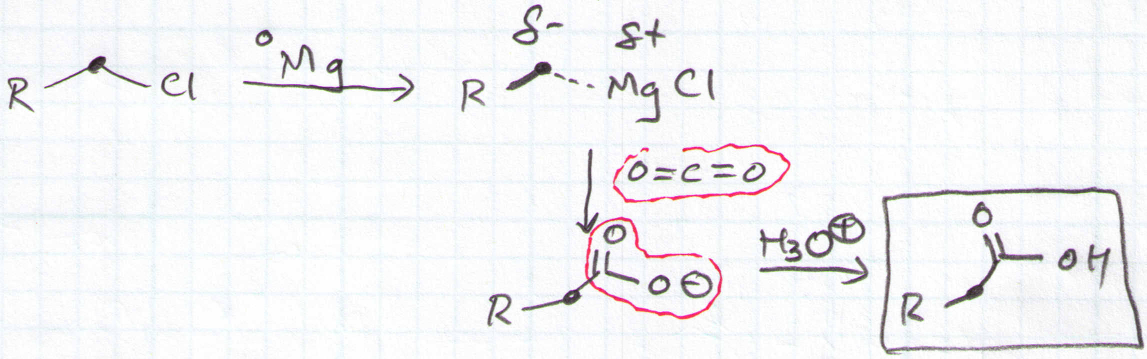


REPEAT ABOVE PROCESS w/ ● attacking

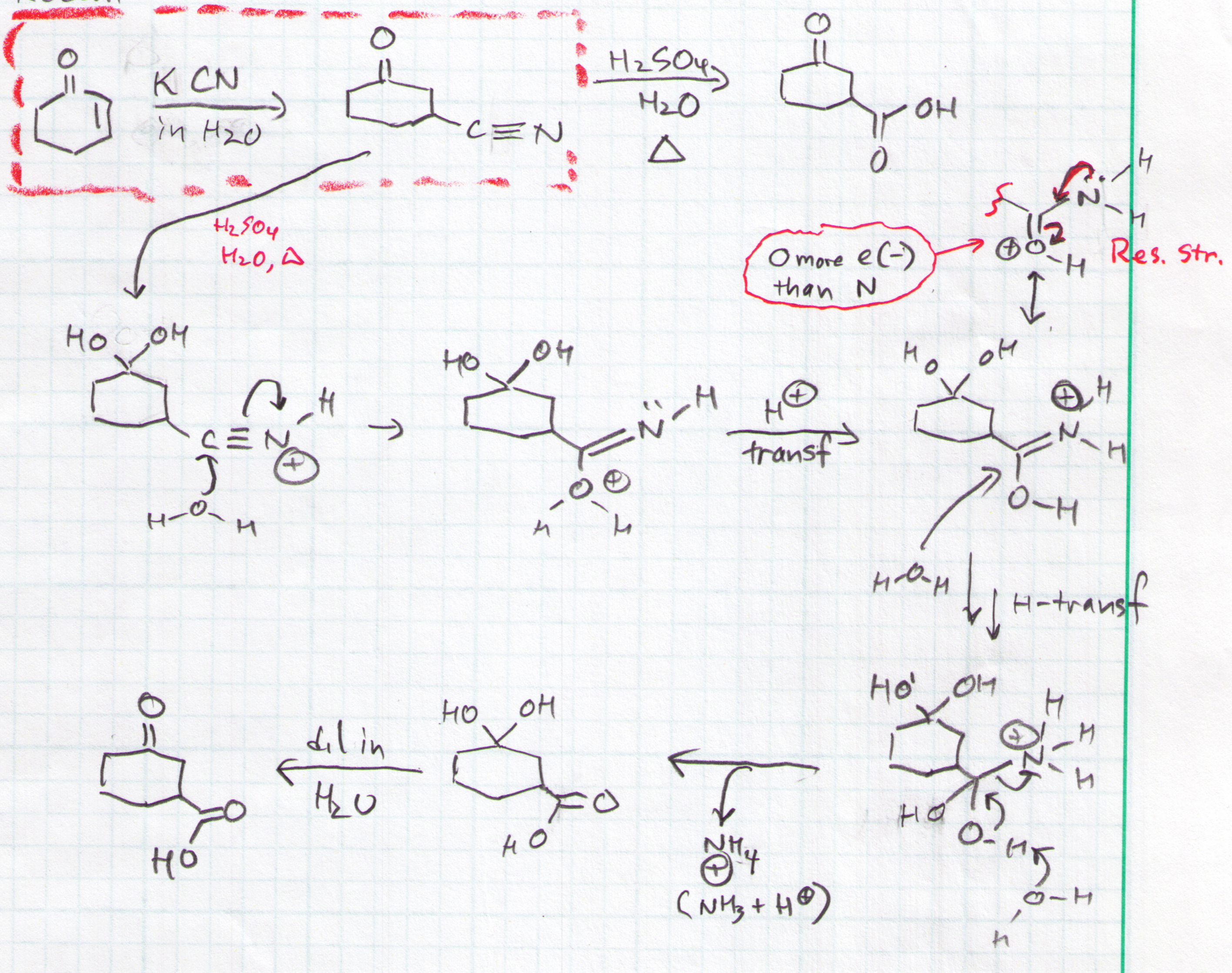


δ^- C – Metal RXNS w/



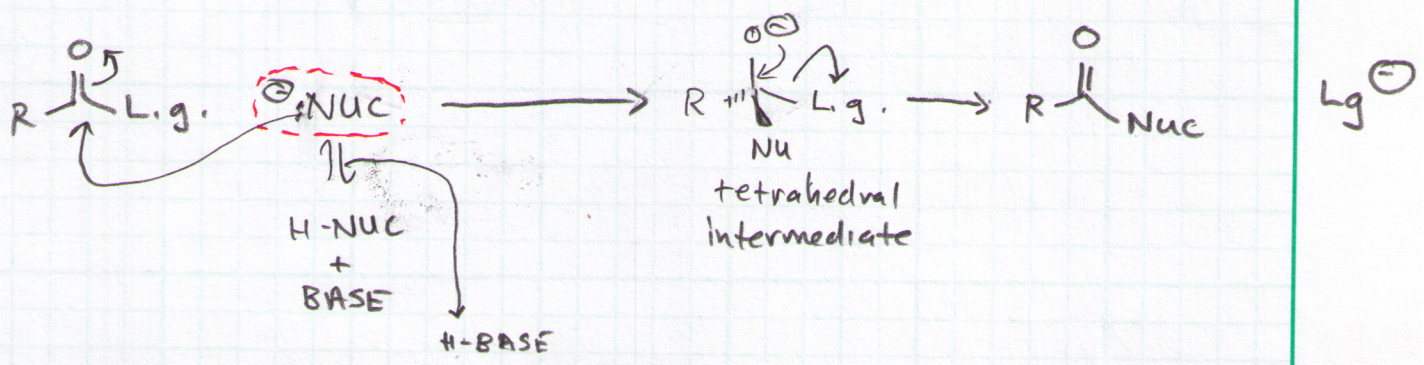


Recall

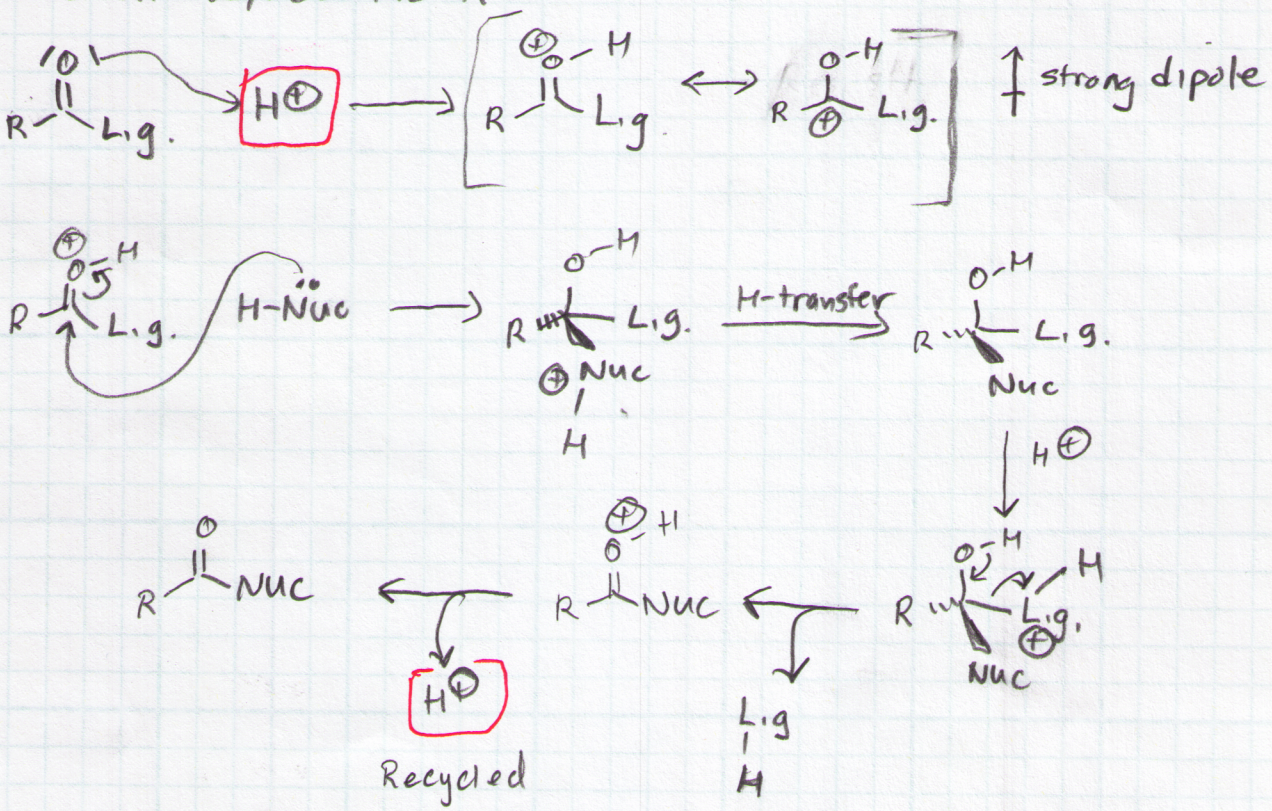


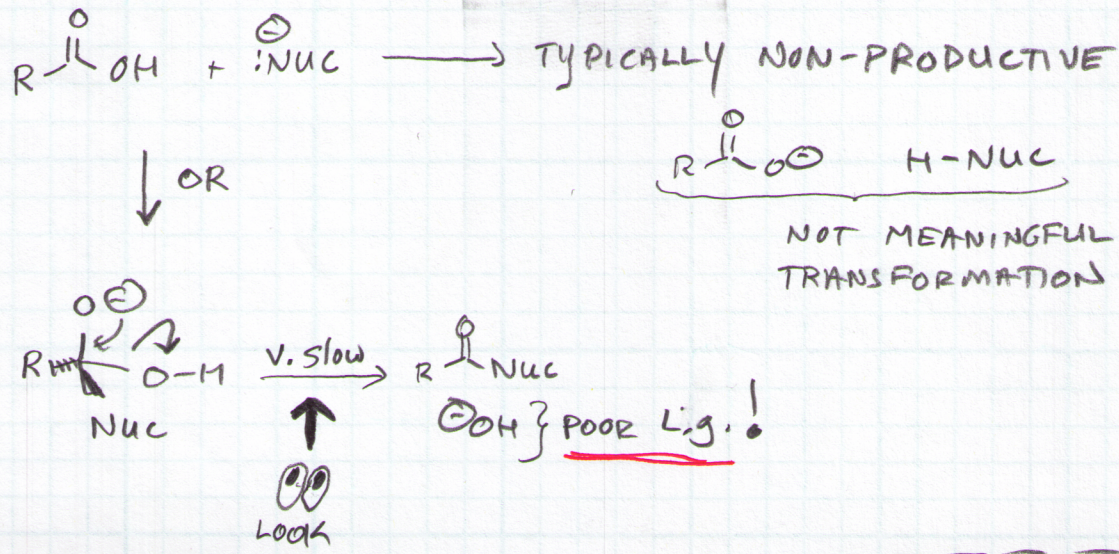
Addition/Eliminath using carbonyl compds containing a Leaving Group (Lg)

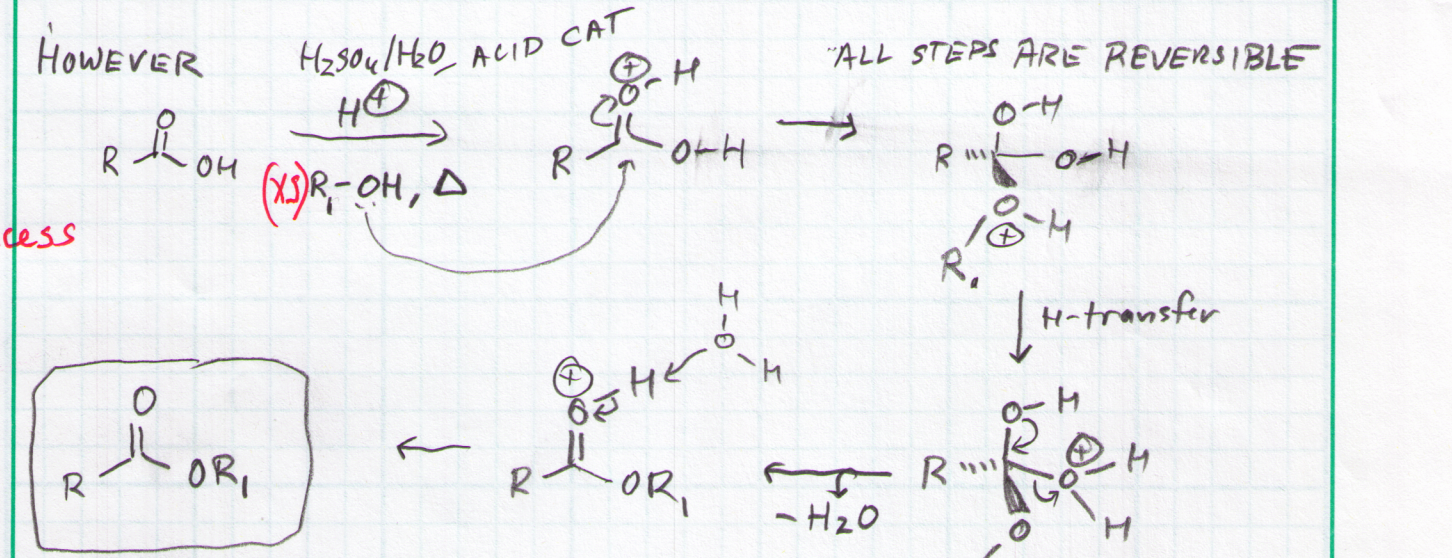
BASE-CATALYZED MECH



ACID-CATALYZED MECH







ESTER HYDROLYSIS