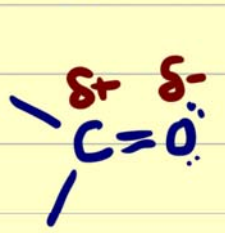
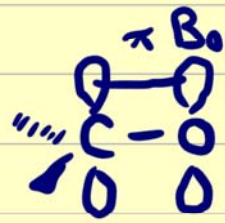
CARBONYL COMPOUNDS.

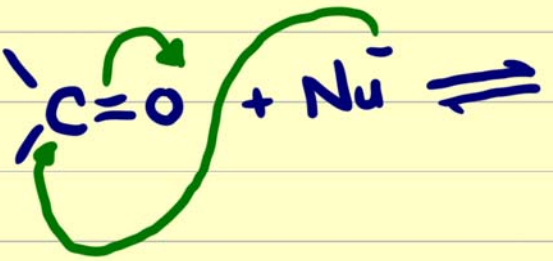




O EN 3.5

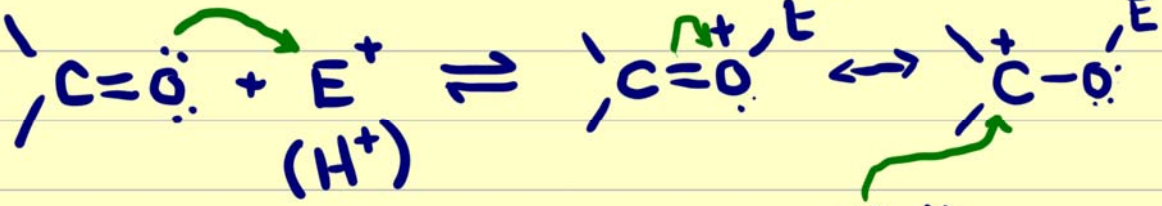
C EN 2.5

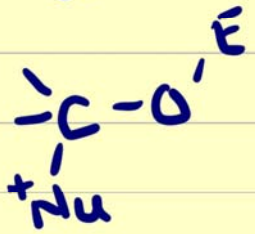
∴ MOST OF REACTIVITY IS.



→ DEPENDS

OR



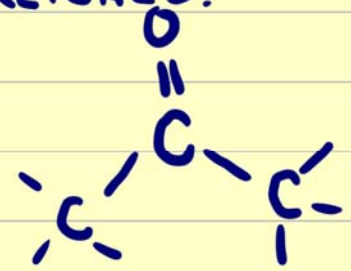


DEPENDS ←

USUALLY CALLED NUCLEOPHILIC ADDITION

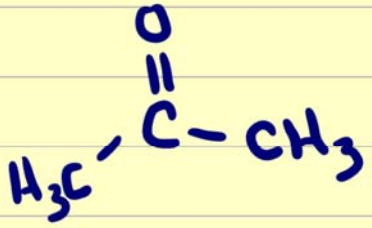
GROUP TOGETHER ALDEHYDES & KETONES

KETONES.



CARBONYL C HAS TWO ADDNAL C'S BOUND.

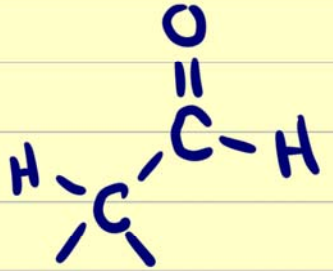
ONE



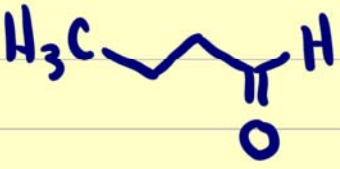
2- PROPANONE (ACETONE)

ALDEHYDES

CARBONYL CARBON HAS ONE H & ONE C (EXCEPT METHANAL)



"AL"

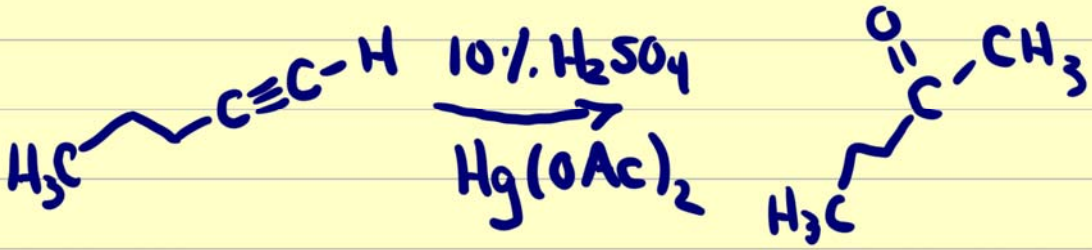


BUTANAL

KEY

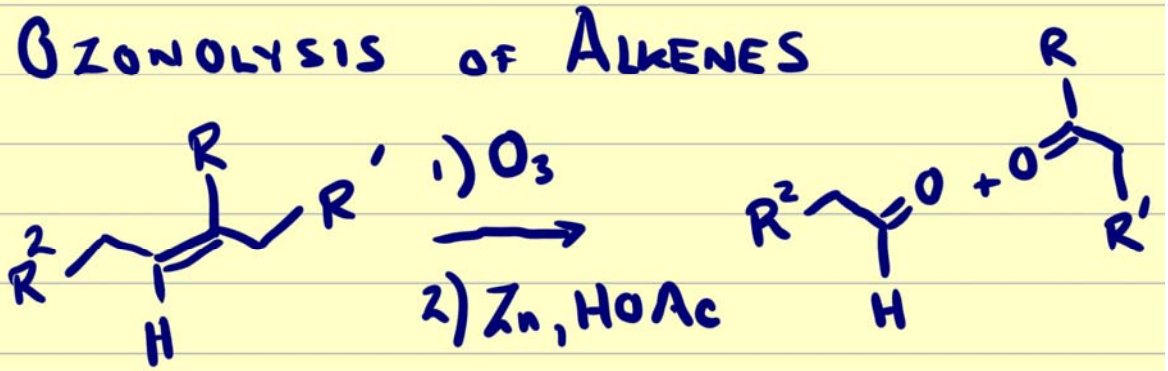
NO LEAVING GROUPS ON CARBONYL C

PREPARATION
- 3 TYPES (1 NEW)

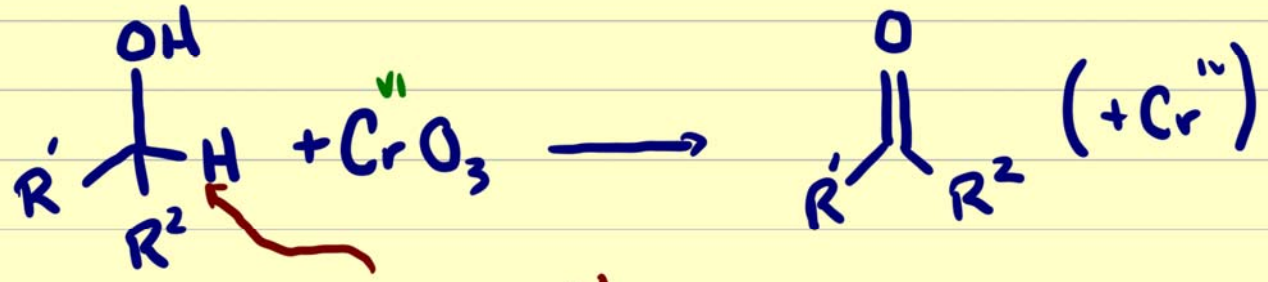
a) 

ADDN OF H_2O ALKYNE

b) OZONOLYSIS OF ALKENES

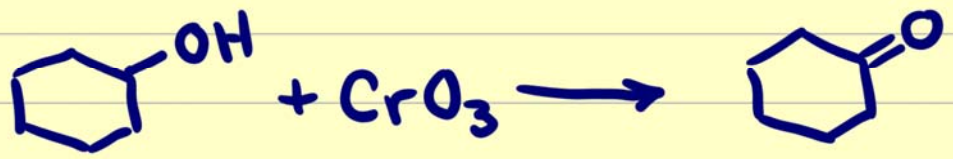


c) OXIDATION OF ALCOHOLS

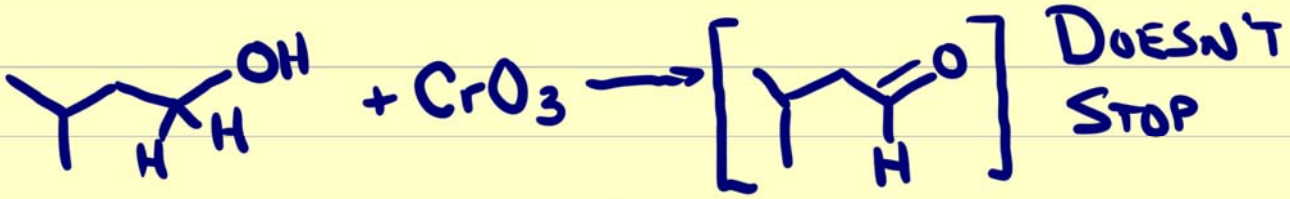


MUST BE >1 H HERE

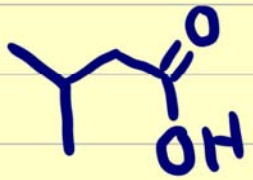
FOR 2° ALCOHOL → KETONE PROCESS, IT'S VERY SIMPLE



FOR 1° ALCOHOLS → ALDEHYDES, THIS IS TRICKIER

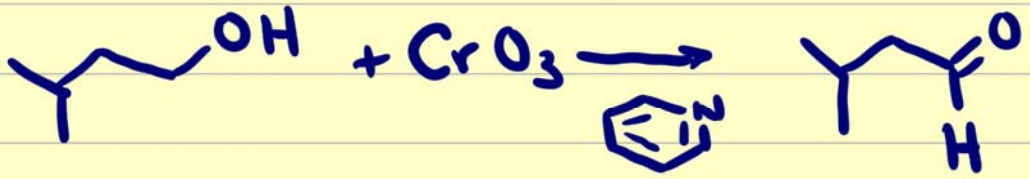


DOESN'T STOP



GET ACID

SOLUTION
- ADD  (PYRIDINE), LOWERS CrO_3 REACTIVITY



Reactions.

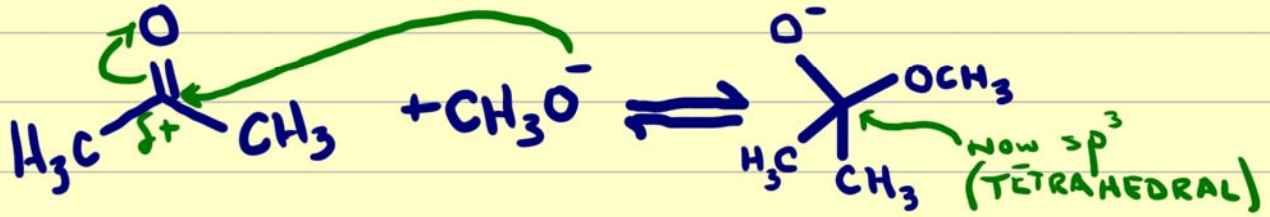
- All Nucleophilic Addns.
- Two Groups
  - "O" Nucleophiles.
  - C or H nucleophiles

i) Oxygen Nucleophiles.

- H_2O, ROH are just not strong enough on their own

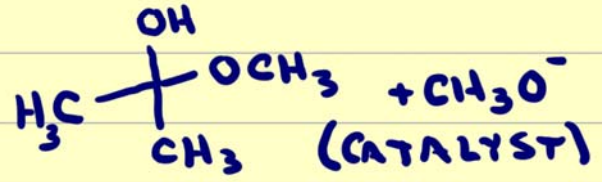
- Can add H^+ or Base

i) Base CH_3OH CH_3O^-

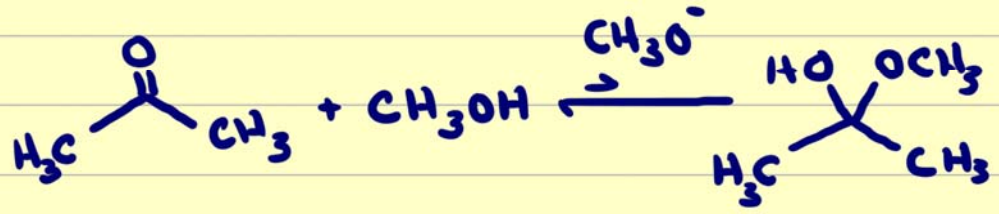


$H_3CO\text{-}H$

Called Hemi-Acetal



BUT THERE'S A SIGNIFICANT PROBLEM.



THE K_{eqn} (EQUILIBRIUM CONSTANT) IS $<<1$
- IN OTHER WORDS, IN THE VAST MAJORITY OF CASES, THIS DOESN'T YIELD PRODUCT.