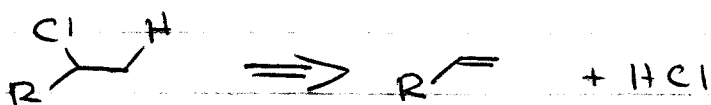
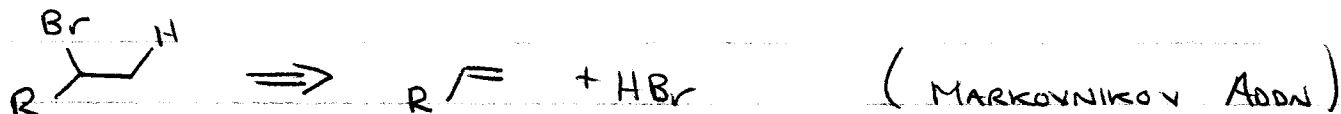


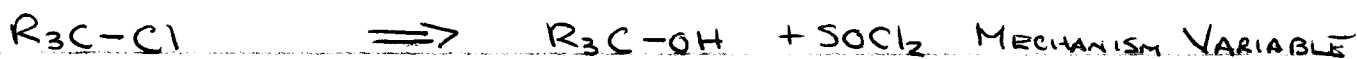
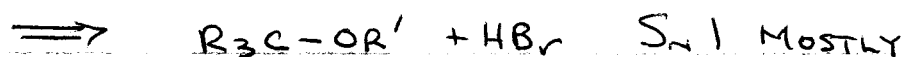
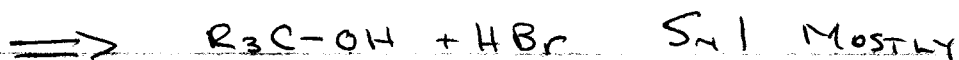
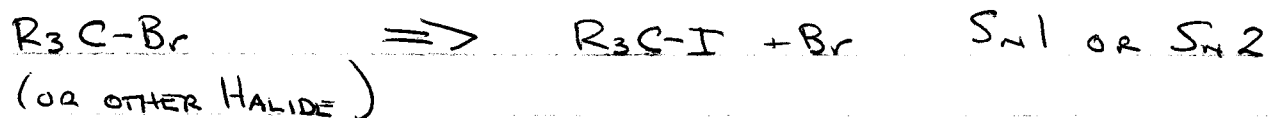
RETROSYNTHETIC ANALYSIS - REACTIONS BY PRODUCTS FORMED

ALKYL HALIDE

- HX ADDN TO ALKENE

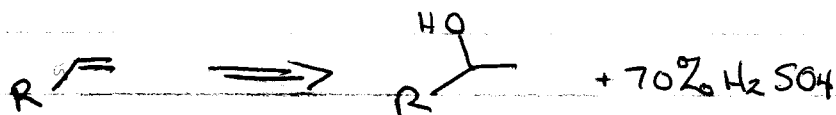


- NUCLEOPHILIC SUBSTITUTION

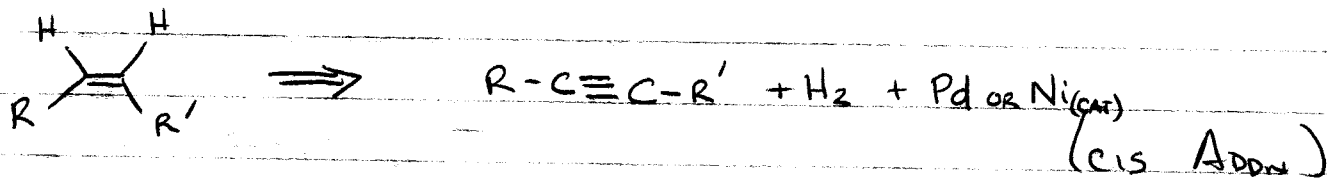


ALKENE

- ELIMINATION OF WATER FROM ALCOHOL

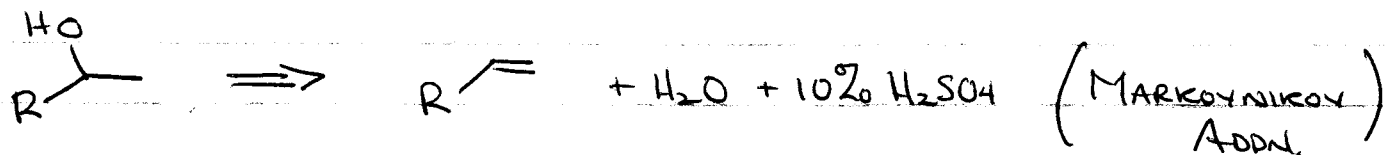


- HYDROGENATION OF ALKYNE

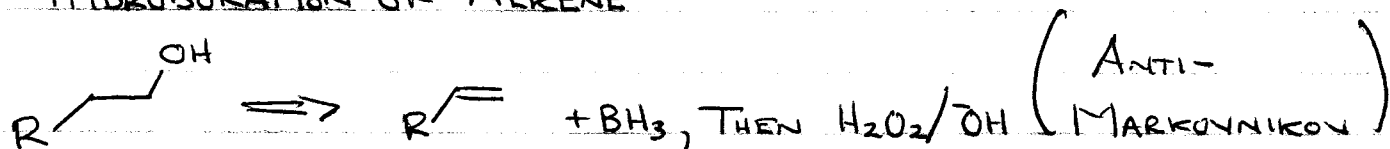


ALCOHOL

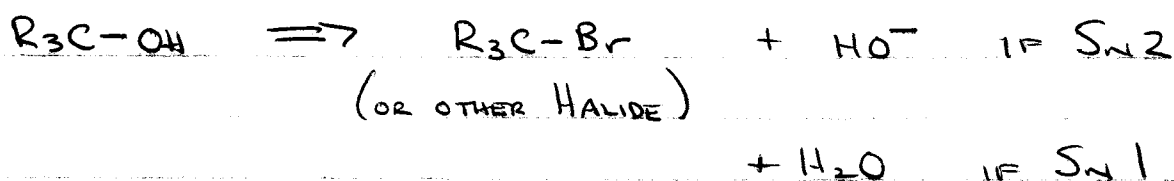
- ELECTROPHILIC ADDN OF H₂O TO ALKENE



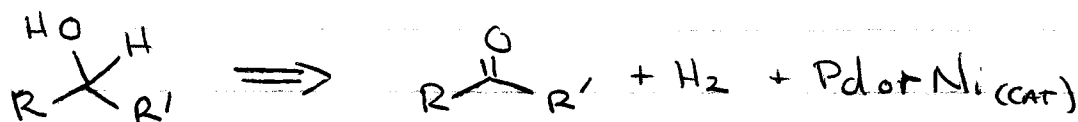
- HYDROBORATION OF ALKENE



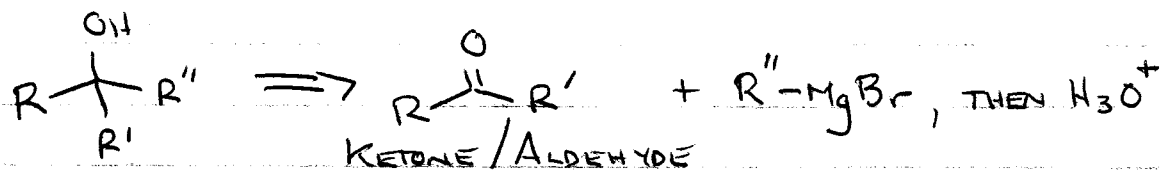
- NUCLEOPHILIC SUBSTITUTION



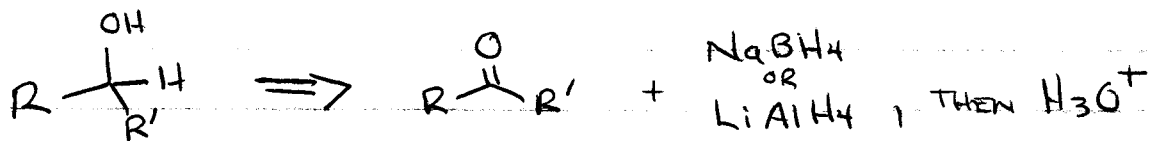
- HYDROGENATION OF KETONE / ALDEHYDE



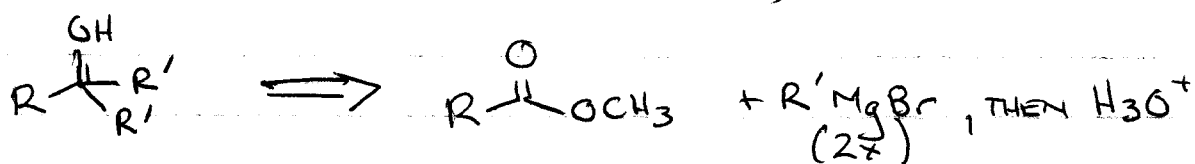
- ADDN OF GRIGNARD TO KETONE / ALDEHYDE



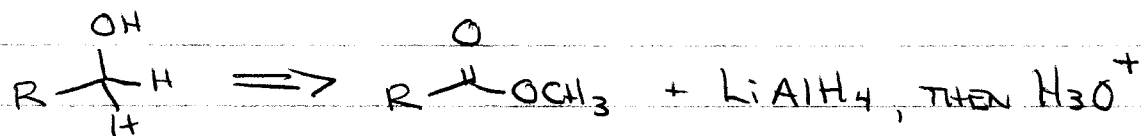
- HYDRIDE REDUCTION OF KETONE / ALDEHYDE



- GRIGNARD ADDN. TO ESTER (2x)

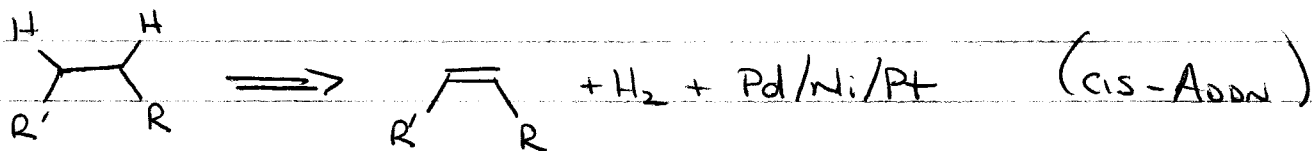


- REDUCTION OF ESTER BY HYDRIDE



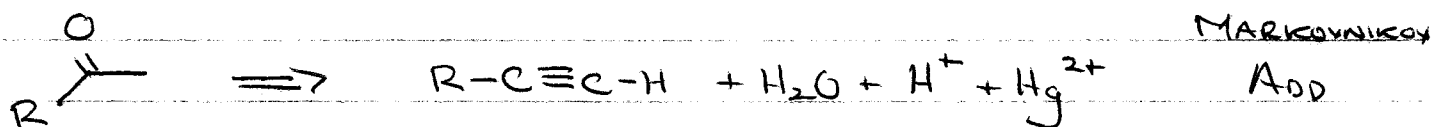
ALKANE

- CATALYTIC HYDROGENATION OF ALKENES

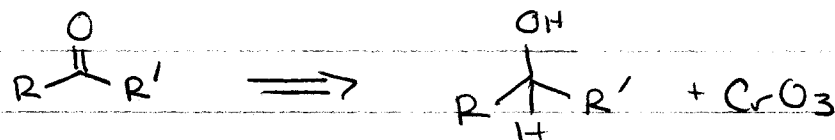


KETONE

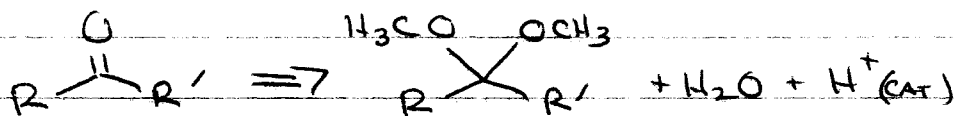
- ADDN OF WATER TO ALKYNE



- OXIDATION OF 2° ALCOHOL

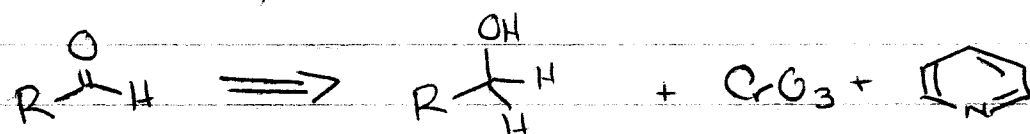


- HYDROLYSIS OF ACETAL



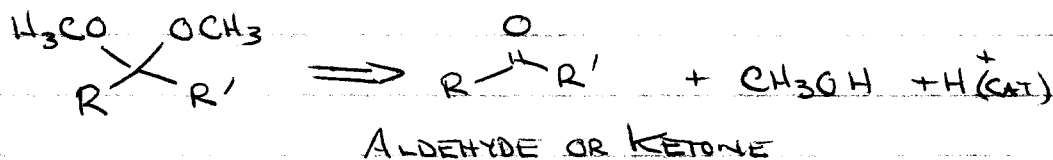
ALDEHYDE

-(CAREFUL) OXIDATION OF 1° ALCOHOL



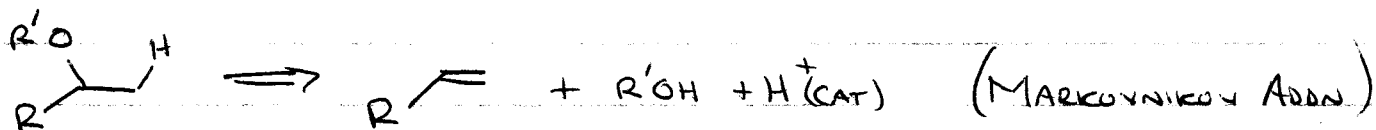
ACETAL

- REACTION OF ALDEHYDE / KETONE WITH ALCOHOL

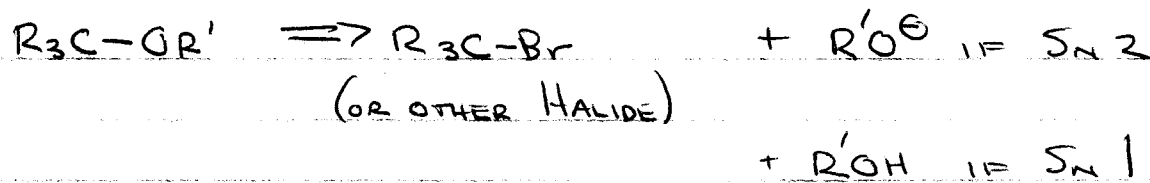


ETHER

- ADDN OF ALCOHOL TO ALKENE

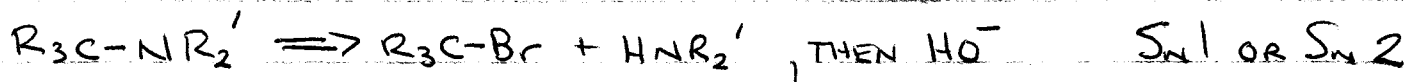


- SUBSTITUTION OF ALKYL HALIDE



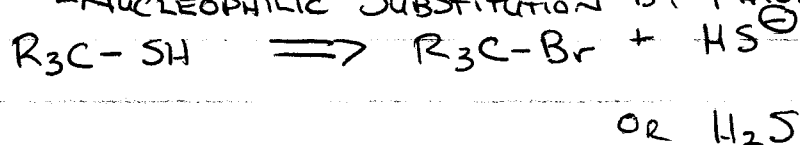
AMINE

- NUCLEOPHILIC SUBSTITUTION BY AMINE



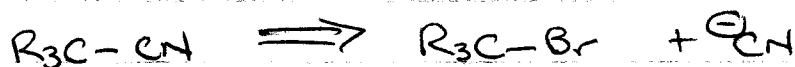
THIOL

- NUCLEOPHILIC SUBSTITUTION BY THIOL OR THIOATE ION



NITRILE

- NUCLEOPHILIC SUBSTITUTION BY CYANIDE ION

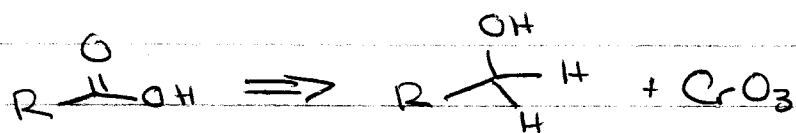


ACID

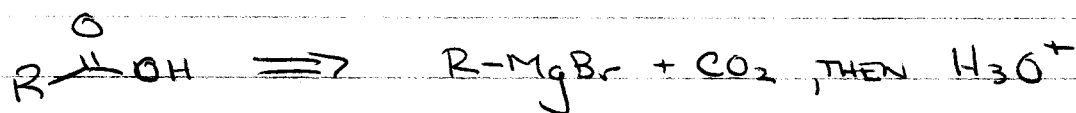
- OXIDATION OF ALDEHYDE



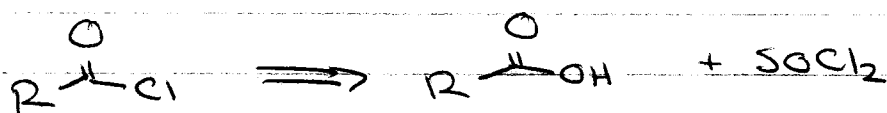
- OXIDATION OF 1° ALCOHOL



- GRIGNARD REACTION OF CO₂

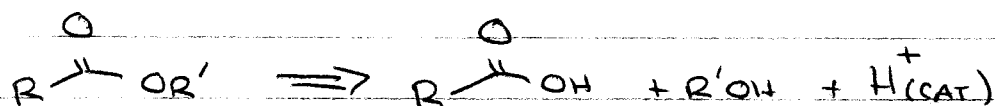


ACID CHLORIDE

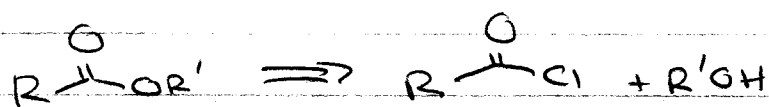


ESTERS

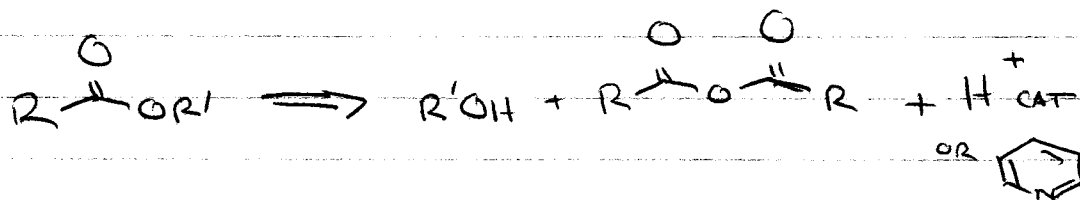
- ACID CATALYZED ESTERIFICATION OF ACID



- ALCOHOLYSIS OF ACID CHLORIDE

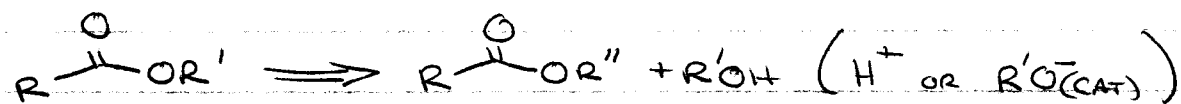


- ALCOHOLYSIS OF ANHYDRIDE



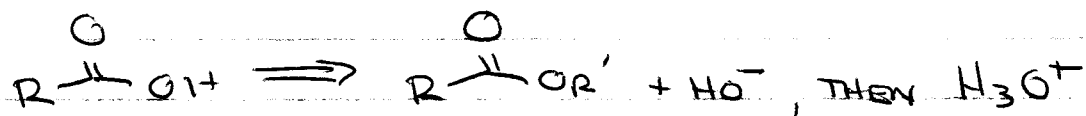
ESTERS, CONT'D

- EXCHANGE OF ESTERS

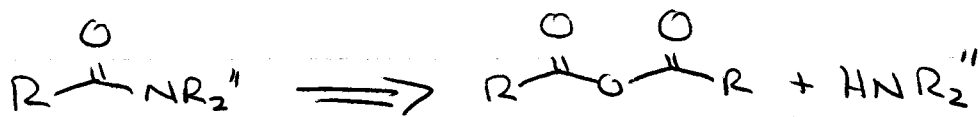
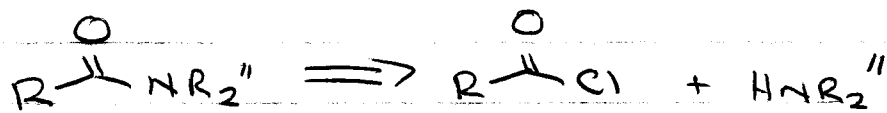


ACID-ONE MORE!

- 'SAPONIFICATION' OF ESTER

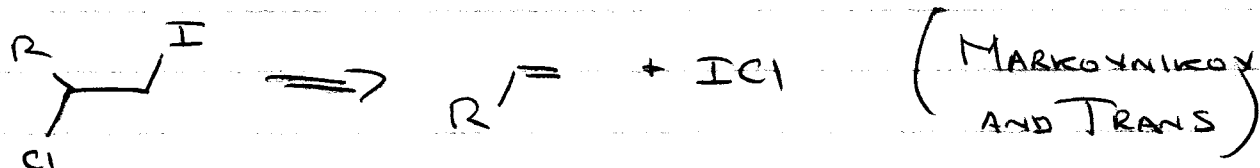
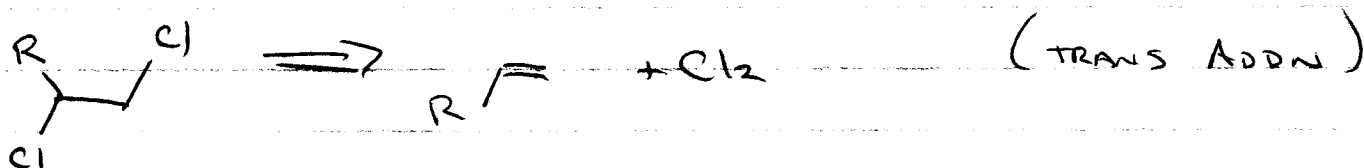
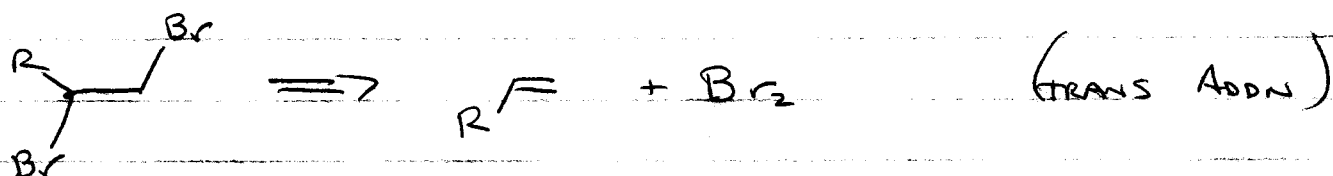


AMIDE

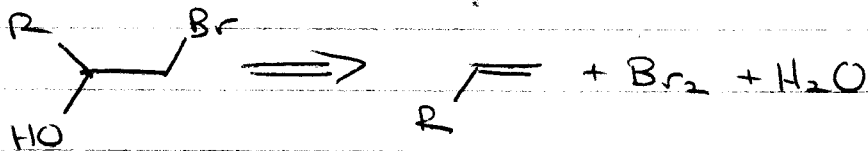


DIFUNCTIONAL PRODUCTS

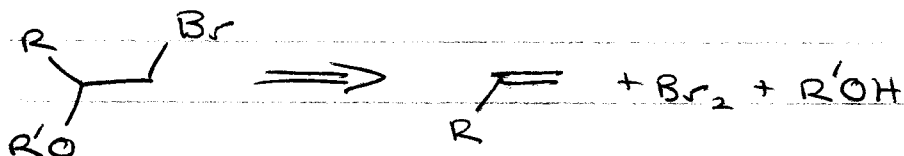
DIBROMIDE OR OTHER DIHALIDE



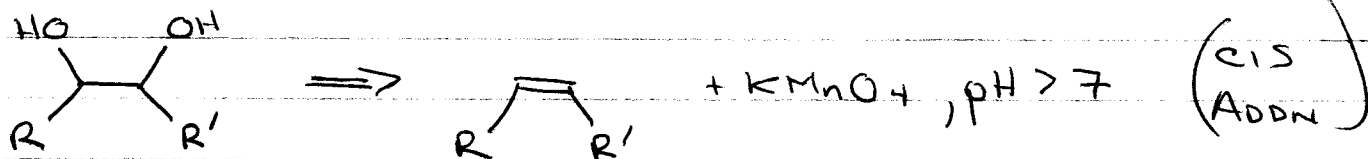
HALIDE AND ALCOHOL



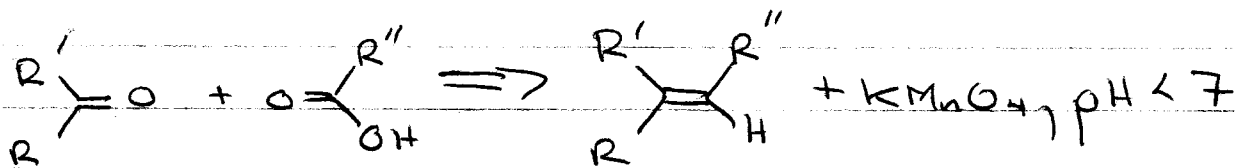
HALIDE AND ETHER



DIOL



KETONE / ACID



KETONE / ALDEHYDE

