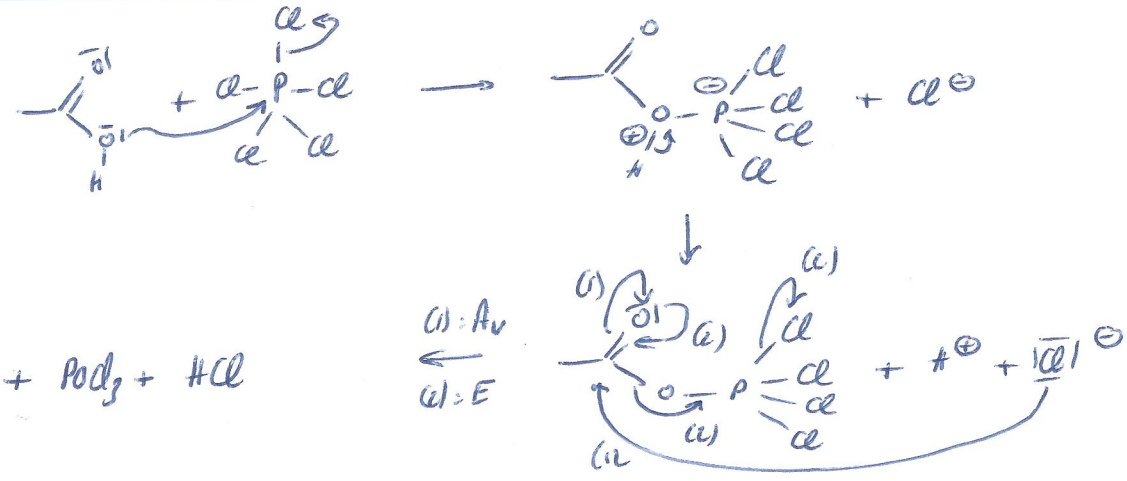
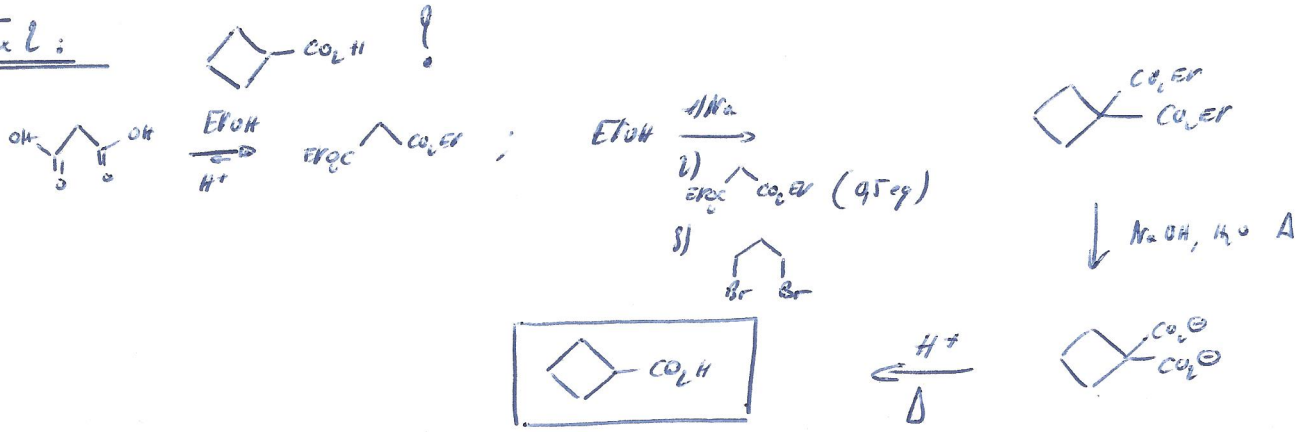
PC

TD acides carboxyliques

Ex 1 :



Ex 2 :



Ex 3 : * F : $C_{10}H_{16}O$

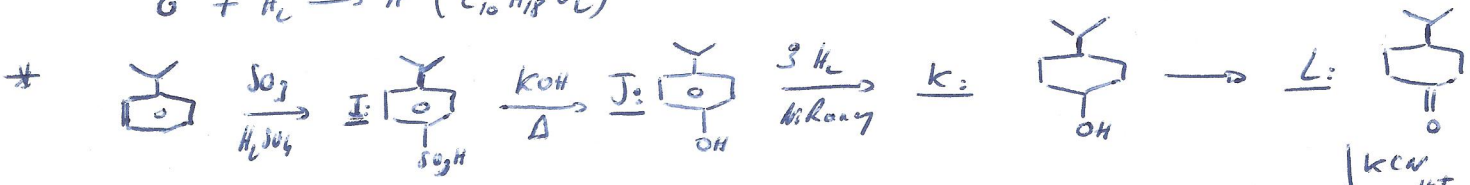
réactif de Tollens → G ⇒

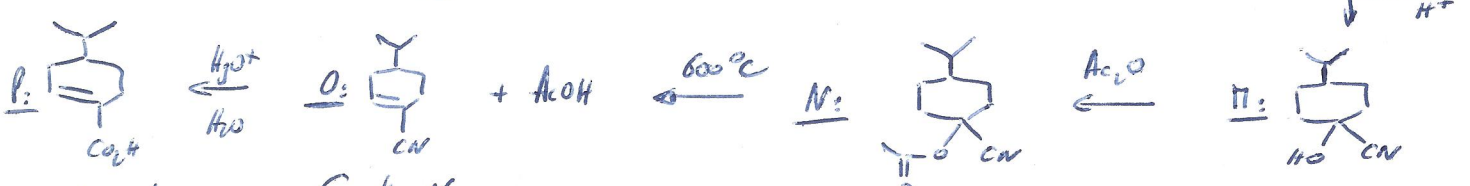
F : R-CHO ($C_{10}H_{16}O$)

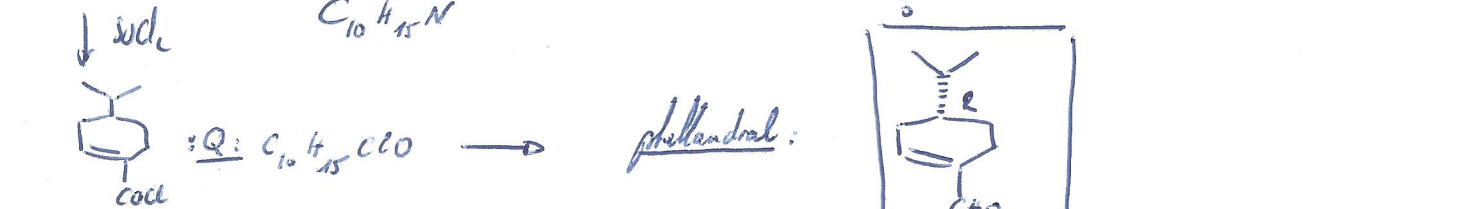
G : R-CO_2H ($C_{10}H_{16}O_2$)

$DE = \frac{22-16}{2} = 3$

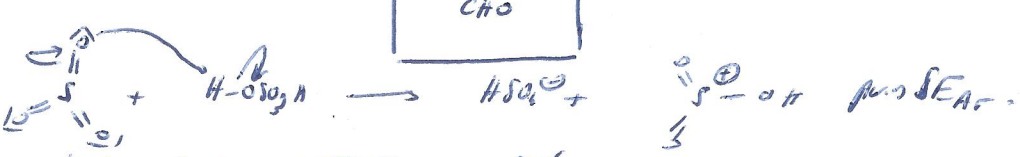
$G + H_2 \rightarrow H$ ($C_{10}H_{18}O_2$)





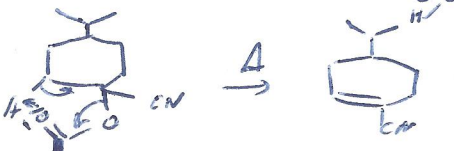


Etape "grande" : * → I

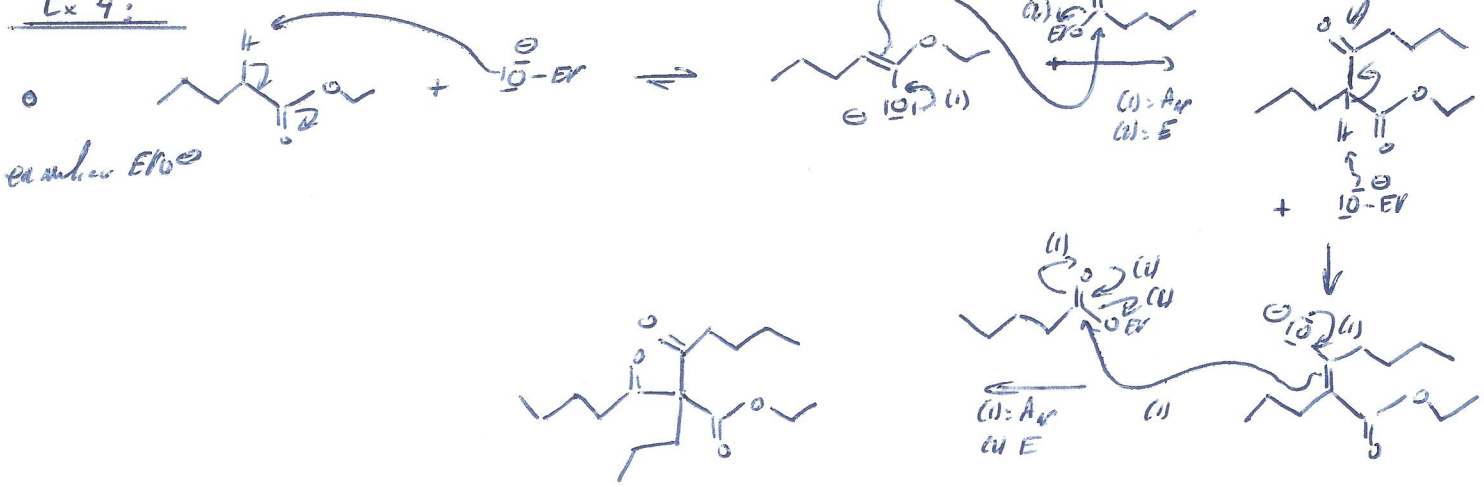


* L → M :

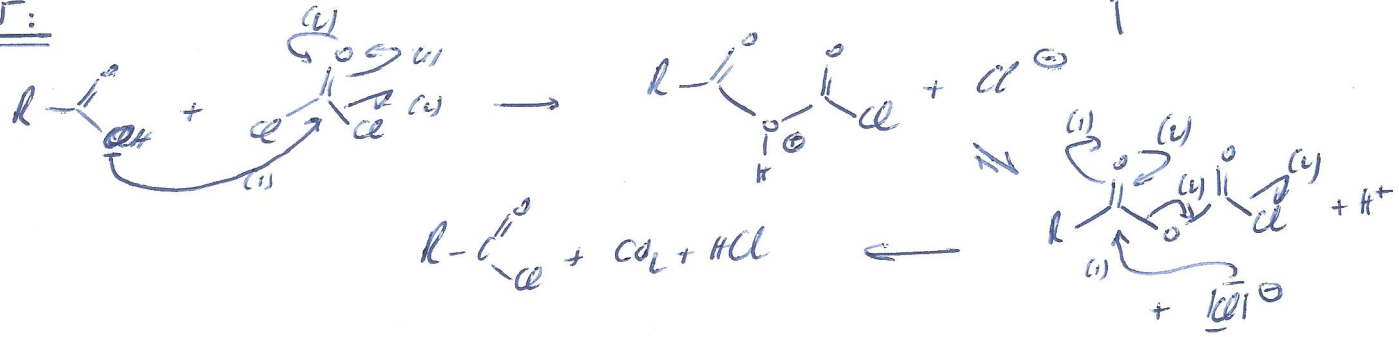
* N → O :



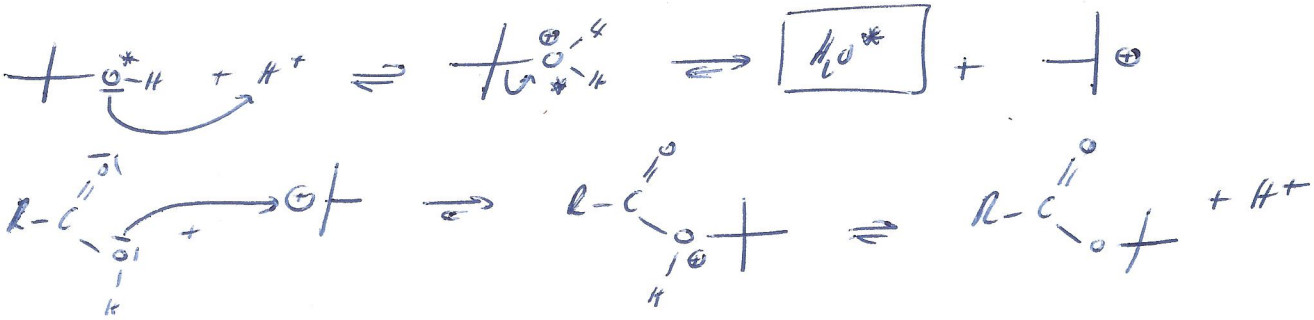
Ex 4 :



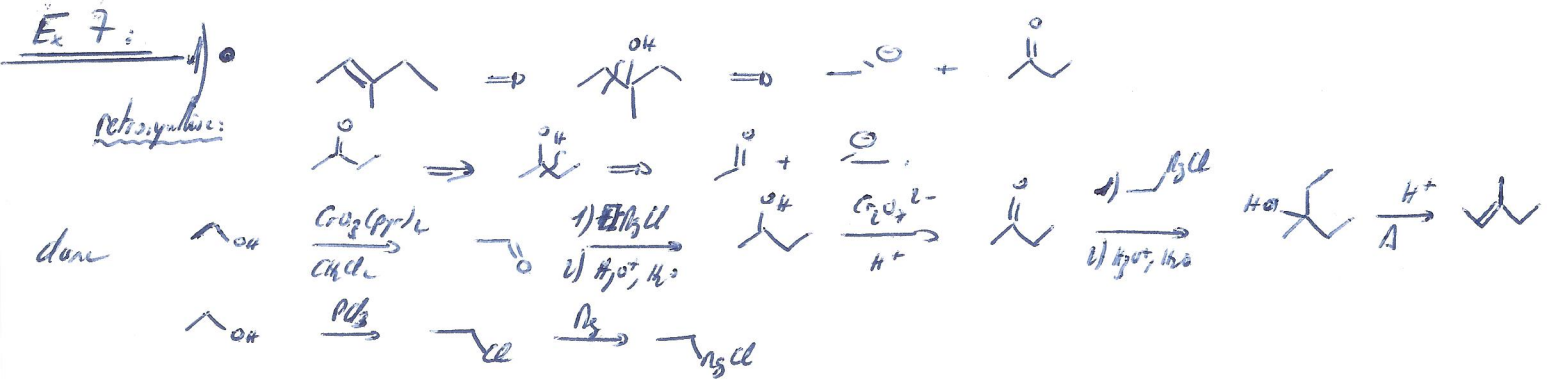
Ex 5 :

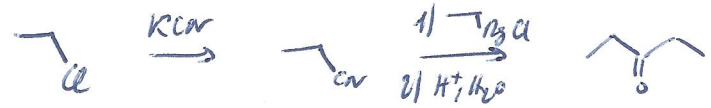


Ex 6 :

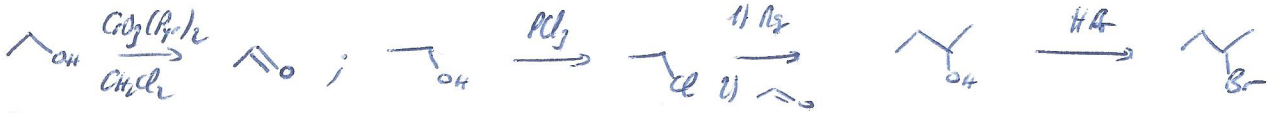


Ex 7 :

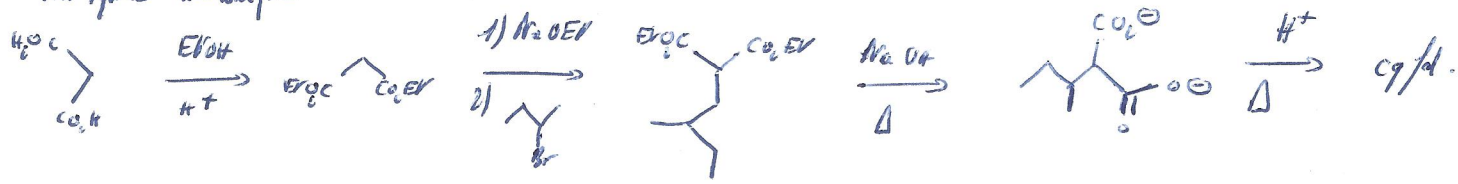


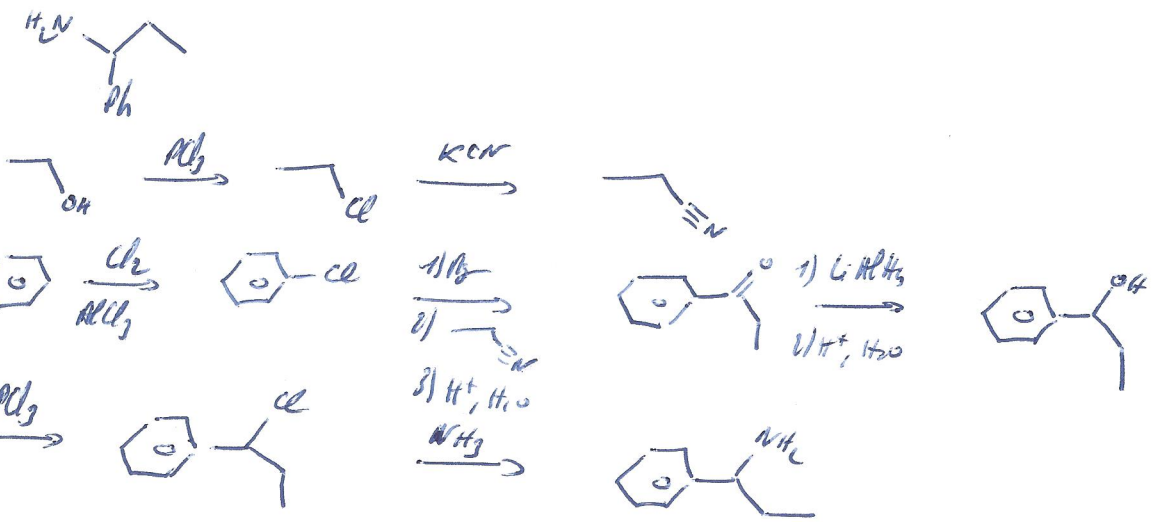
2) 

3) 

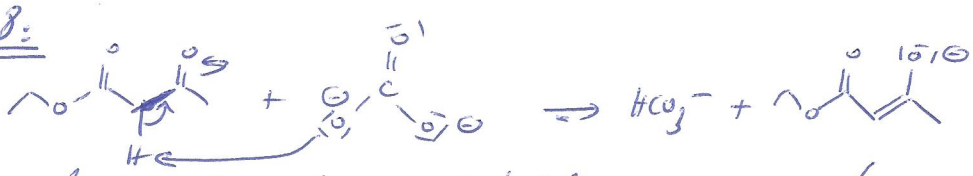


Puis synthèse malonique

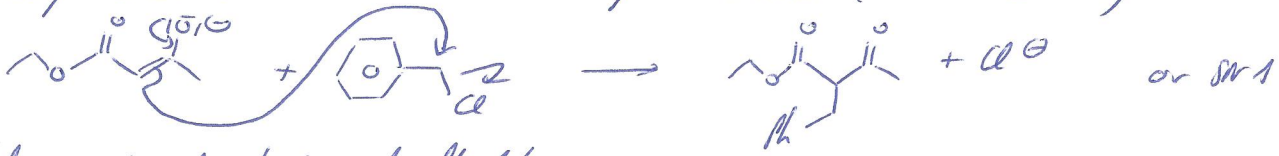


4) 

Exercice 8 :

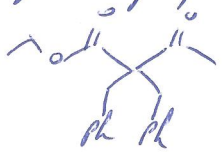
1/a) 

relativement facile car la carbanion est stabilisé par mésomérie (en α du C=O)

b) 

ou SR1

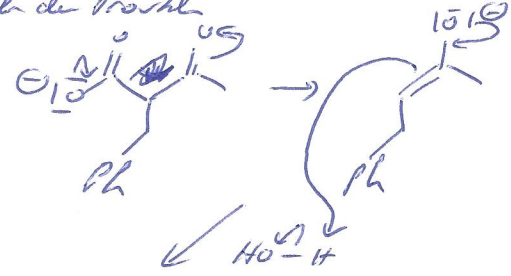
c) Pour éviter la pb de polyalkylation

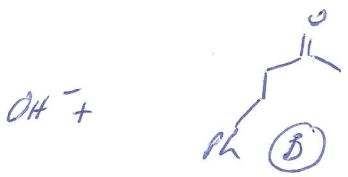
Travailler :  mais avec encombrement

1-a) $Ca^{2+}_{aq} + 2OH^- + CO_2(g) \longrightarrow CaCO_3(s) + H_2O$

responsable du trouble

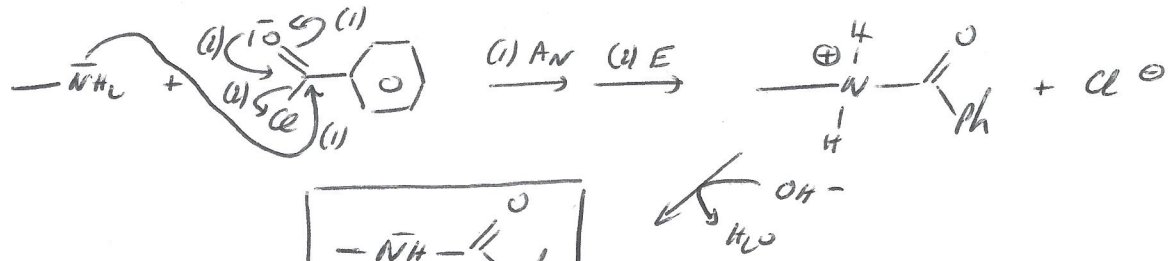
b) A $\xrightarrow[\Delta]{NaOH}$ saponification (micro-ondes conseillé)



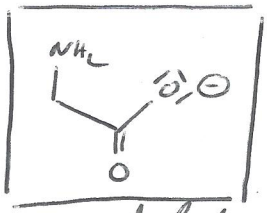


TD $A_N + E$ – Ex 11 : synthèse d'un dipeptide

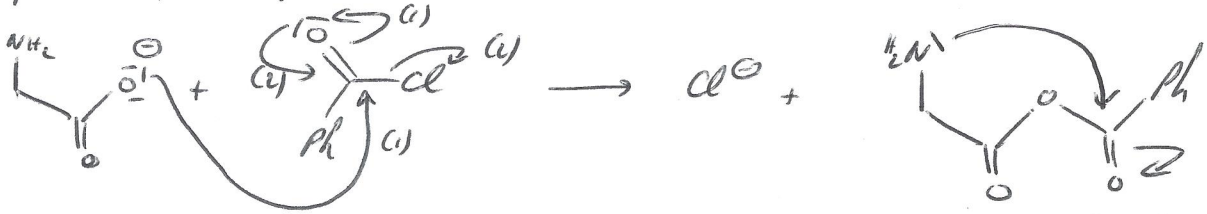
1) a)



b) Glycine en milieu basique :

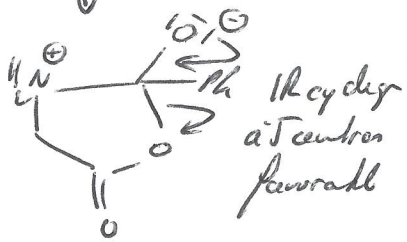


c) Le glycinate est le nucléophile, le chlorure d'acide l'électrophile
A priori le carboxylate est le plus nucléophile

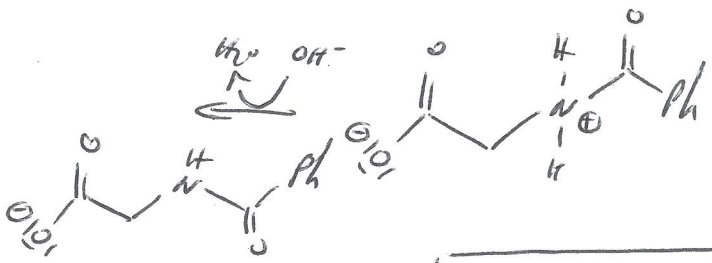


anhydride d'acide très électrophile

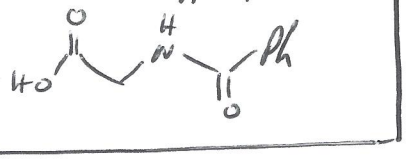
A_N intramoléculaire



produit 4 avant acidification

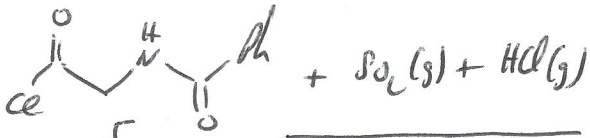


acide hippurique 4 :



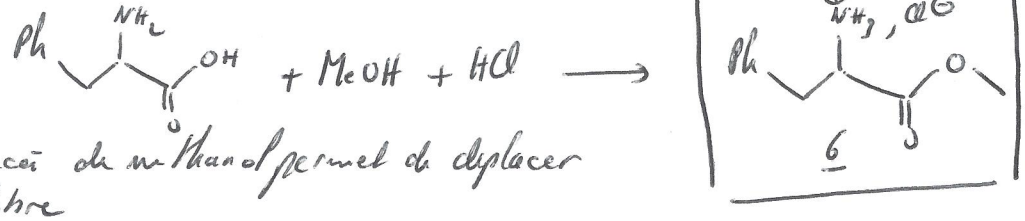
d) Si le milieu devient acide l'amine ne servant plus nucléophile car elle serait protonée

2) a)



5

b) 1-



6

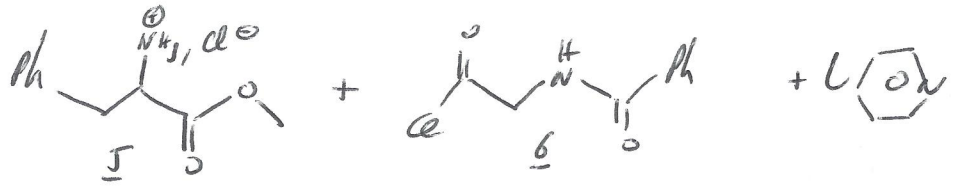
2- Excès de méthanol permet de déplacer l'équilibre

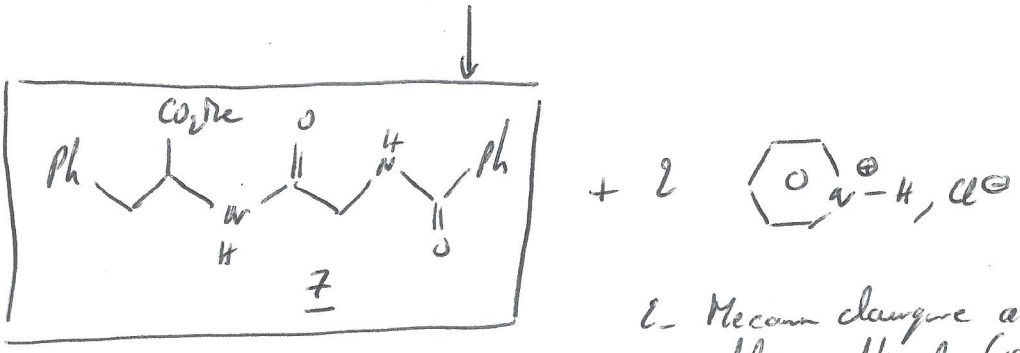
3- HCl permet de catalyser la réaction d'estérification et de protoner l'amine qui n'est alors plus nucléophile

4- Réaction sélective car l'estérification est athermique (accélération de la réaction)

5- Voir mécanisme de commande activée électrophile

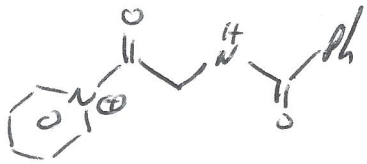
2/c) 1.





2- Mécanisme classique d'addition par chlorure d'acide (voir cours)

3- En fait cela accélère la réaction par formation d'un ion très électrophile



3) a) Mécanisme de la saponification

b) Activation nucléophile et réaction totale alors que l'hydrolyse acide d'un ester est équilibrée.

On obtient les azotes non protonés.