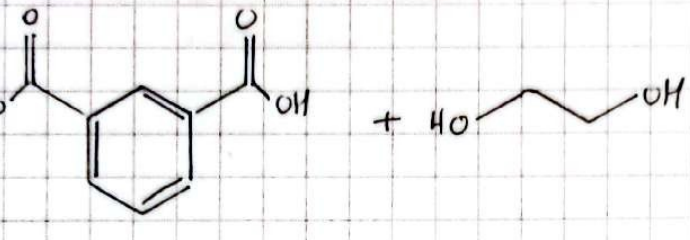
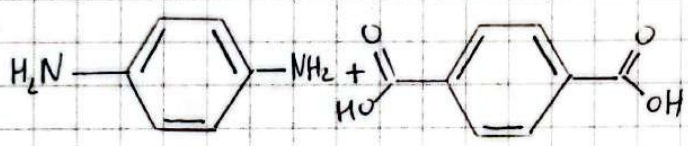
TMC04 - TD - corrigé

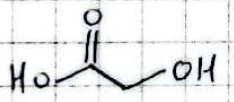
* Uniquement s'il s'agit d'un examen.

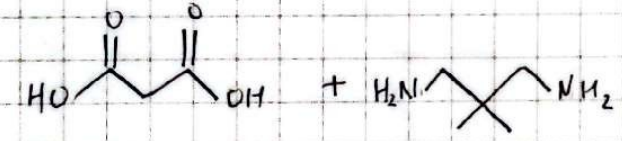
Application directe du cours

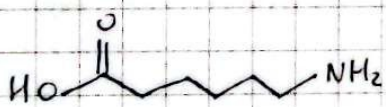
Ex1

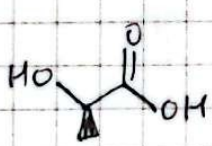
1.  polyester

2.  polyamide

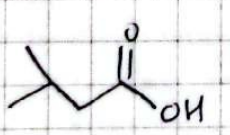
3.  polyester

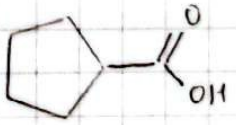
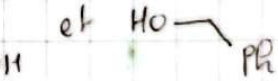
4.  polyamide

5.  polyamide

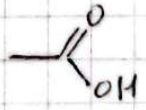
6.  polyester

Ex2

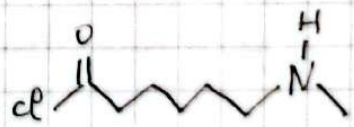
1.  et (pyr)

2.  et  (pyr)

3.  et  (excès)

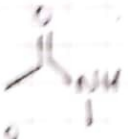
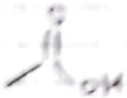
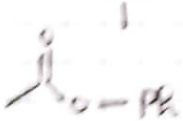
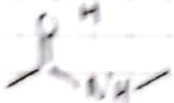
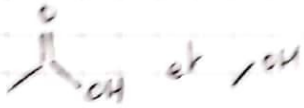
4.  et  (pyr)

5.  (pyr)

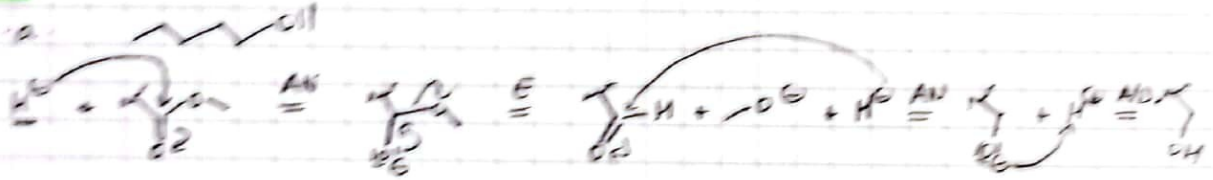
6.  (pyr)

N° .../...

Ex 3

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 

Ex 4

1. a. 

b. 

puis 2e fois

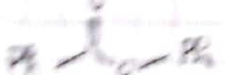
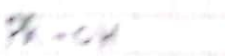
2. a 

b  B est un aldéhyde

c. Bande IR : C=O

Triplet : H aldéhyde

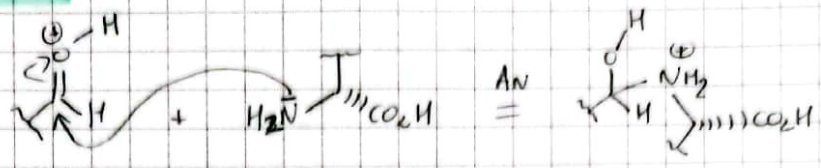
Ex 5

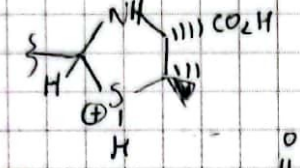
1. 
2. 
3. 
4. 1) NaOH, Δ 2) H_2SO_4 dilué
5. 
6. 
7. 
8. H_2SO_4, Δ

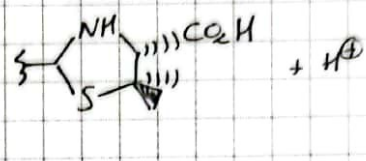
N° .../...

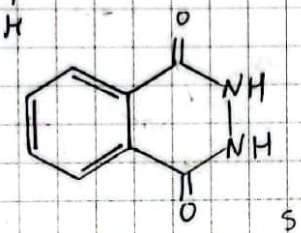
S'entraîner

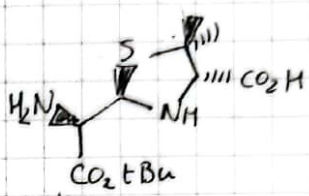
Ex 1

1. 





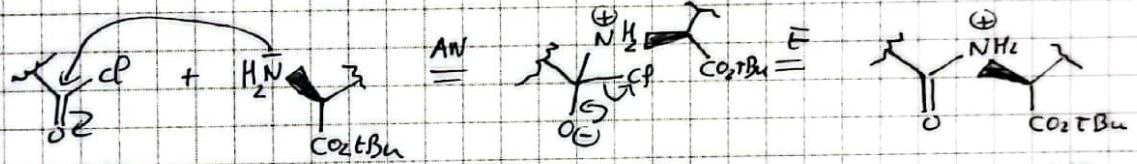
2. D : 

E : 

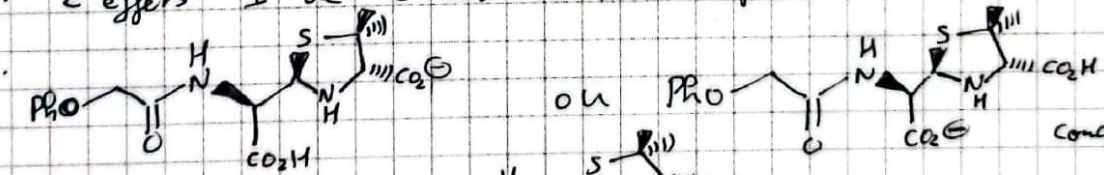
s'aider des formules brutes

3. le groupe phtaloyle servait à protéger la fct amine

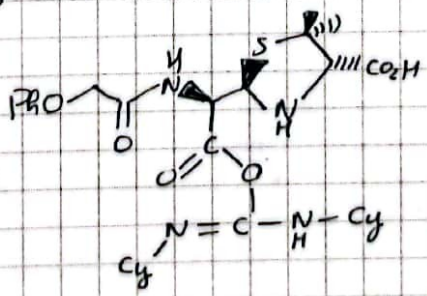
4. 

5. 

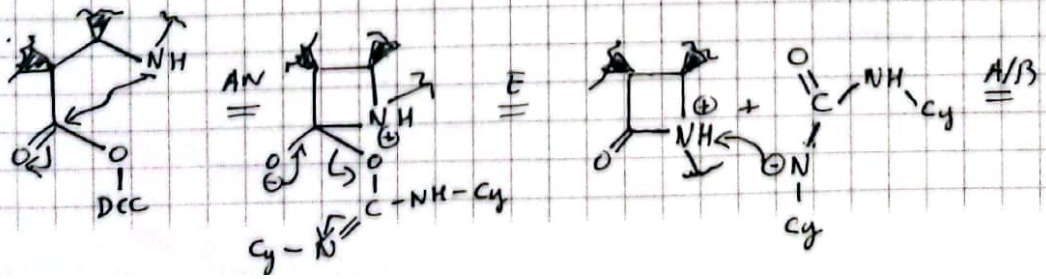
6. 2 effets I de C vers N ⇒ électrophile = C central

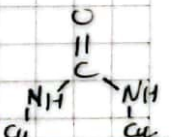
7. 

conduit à PV

8. 

K :

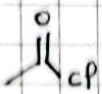
9. 

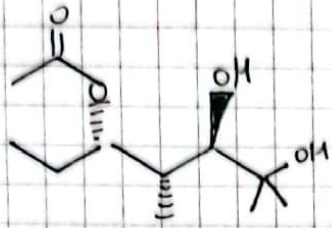
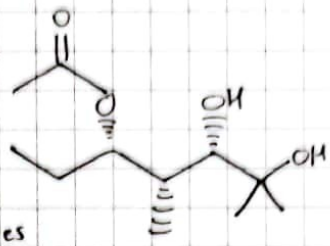
L 

PV N° .../...

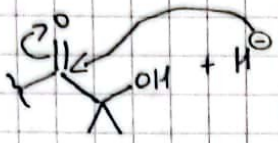
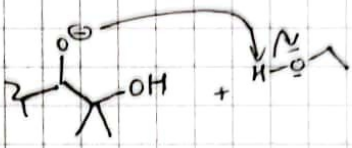
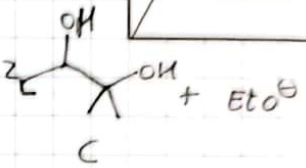
Ex 2.

ne rien écrire dans la partie barrée

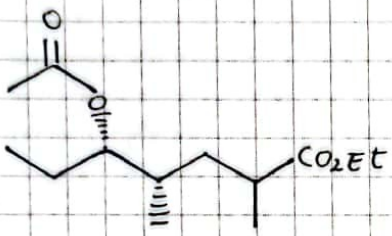
1. réaction avec  ds la pyridine

2.  ou 

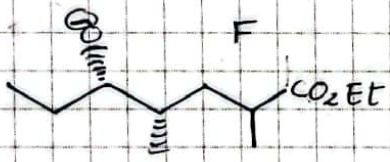
diastéréoisomères

3.  AN =  A/B = 

C

4.  E

5. Mélange de Na ds MeOH

6.  + $MeCO_2Me$

mécanisme d'estérification

7. Bromoéthane sur magnesium
   - garde à $CaCl_2$ (s)
   - Solvant anhydre (THF)
   - goutte à goutte

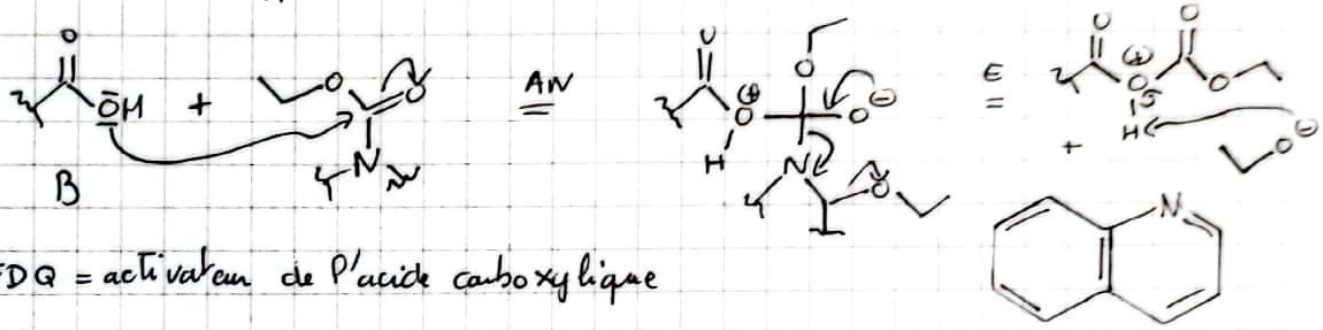
8.  Double addition sur C=O

N° .../...

* Uniquement s'il s'agit d'un examen.

Ex 3

1.  :C

2. 

EEDQ = activateur de l'acide carboxylique

3. Protéger une fct acide et empêcher que les 2 acides réagissent

4. a: AN b: A/B c: SN2 d: SN2

5. $Ph_3P + RO_2C{-}N{=}N{-}CO_2R + F + G = Ph_3P{=}O + RO_2C{-}HN{-}NH{-}CO_2R + H$

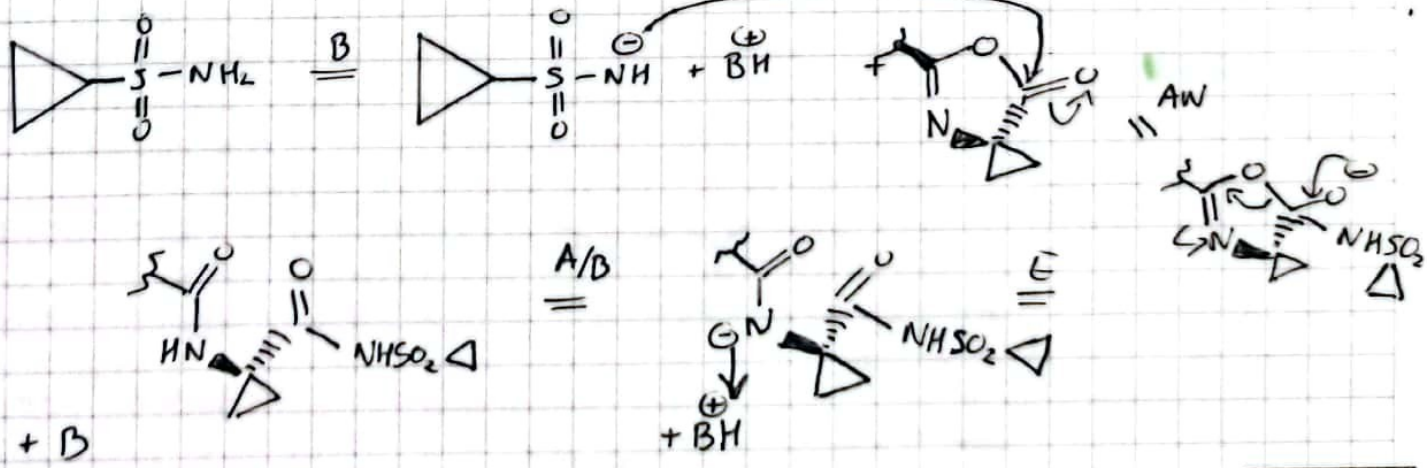
6. inversion de Walden

7. Activation électrophile de l'alcool par tosylation.

" Nucléophile du phénol " Pa soude

8 hydrolyse de l'ester 1) NaOH, Δ 2) H_2SO_4 dilué

l'amide aurait pu réagir mais moins électrophile

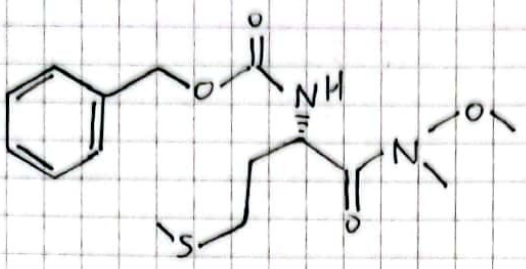
9. 

+ B

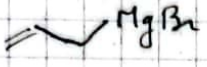
N° .../...

Ex4

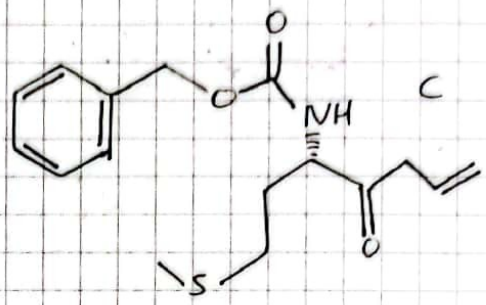
1.



2.



B



C

3. Sous argon : atmosphère sans O_2 ni humidité.

goutte à goutte : pour éviter la réaction de Wurtz

4.

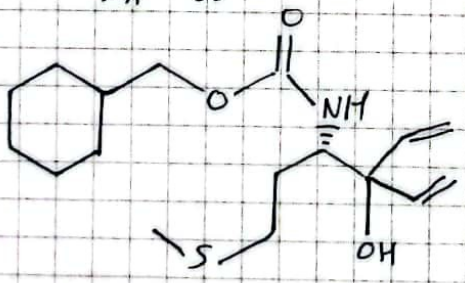
A : $n_A = \frac{m}{M} = \frac{21,5}{326} = 66 \times 10^{-3}$ mol

B : $n_B = C \times V = 0,48 \times 0,288 = 138 \times 10^{-3}$ mol

C : $n_C = \frac{m}{M} = \frac{18,4}{307} = 60 \times 10^{-3}$ mol

$\Rightarrow r = \frac{n_C}{n_A} = \frac{60}{66} = 91\%$

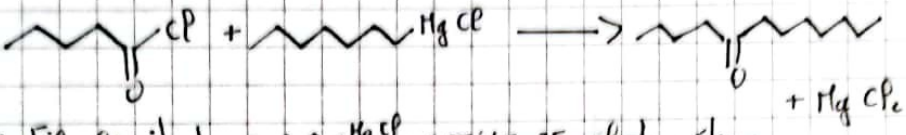
5



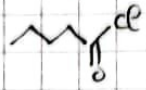
La fonction ester subirait une double AN et donnerait un alcool tertiaire

ne rien écrire dans la partie barrée

Ex5

1. 

Réactif limitant  $\Rightarrow 0{,}87 \times 40 = 35$ mmol de cétone

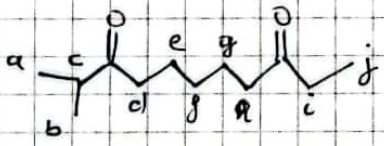
Hydrolyse : détruire l'excès de 

2. cf cours TCM4.

3. $MnCl_2$ est un catalyseur qui permet une chimiosélectivité dans des cond° douces

4. On aurait eu une double addition de l'organomagnésien sur C=O

=> alcool tertiaire 

5. 

Doublet -6H → a, b

Septuplet -1H → c

Massif -10H → d, e, f, g, h

quadruplet -2H → i

Triplet -3H → j

N° .../...

* Uniquement s'il s'agit d'un examen.

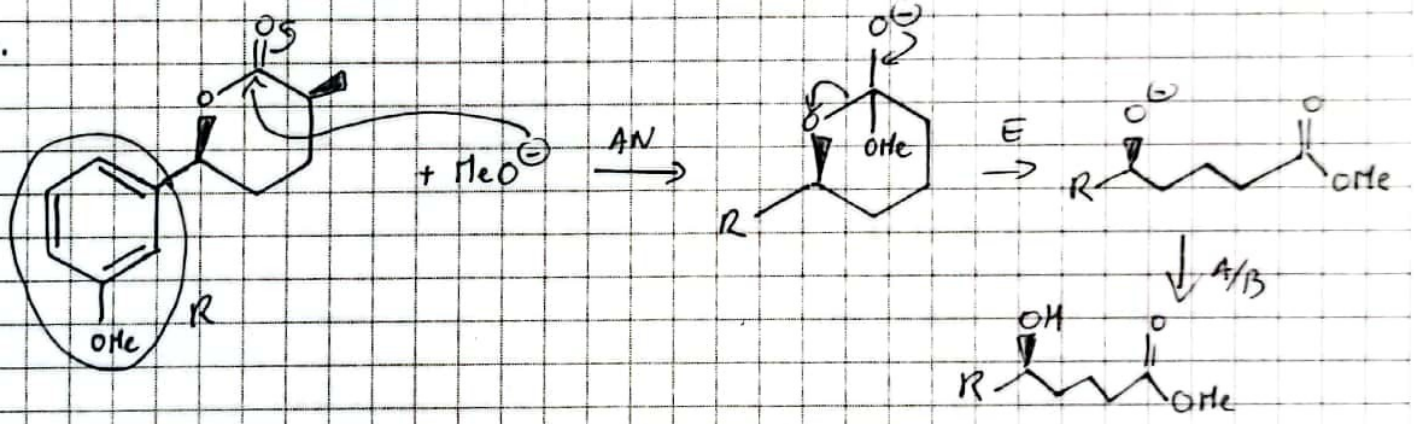
Approfondir

Ex 1

1.a. $CH_3-OH + Na \longrightarrow CH_3-O^{\ominus} + Na^{\oplus} + \frac{1}{2}H_2$

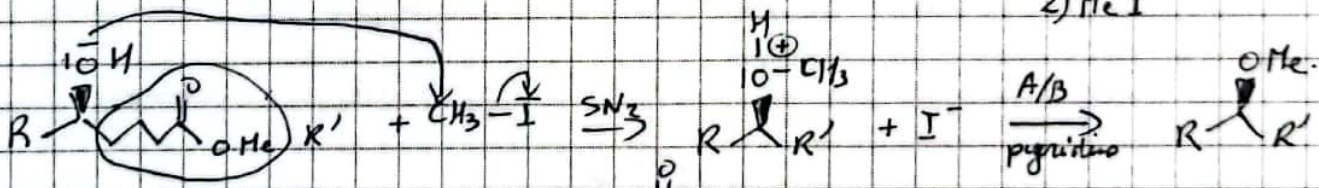
1.b. $\eta = \frac{m_B}{m_A} = \frac{83,2}{90,8} = 92\%$

1.c.

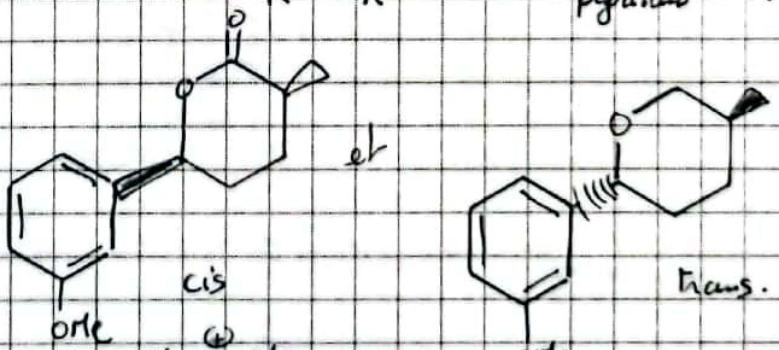


2. réaction d'acylation ⇒ Synthèse de Williamson — 1) NaH, 2) MeI

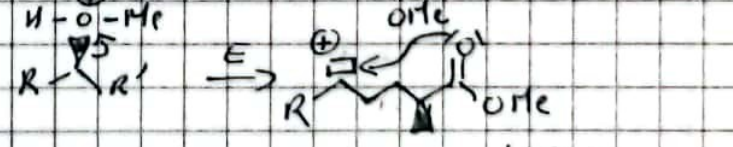
3.

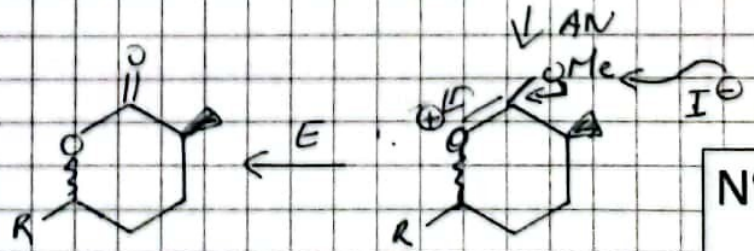


4. 2 formes pour A' diastéréoisomères



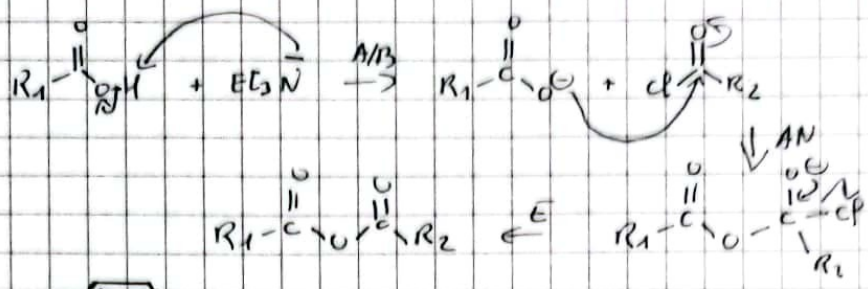
Mécanisme : début idem 3, mais

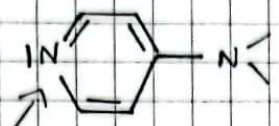




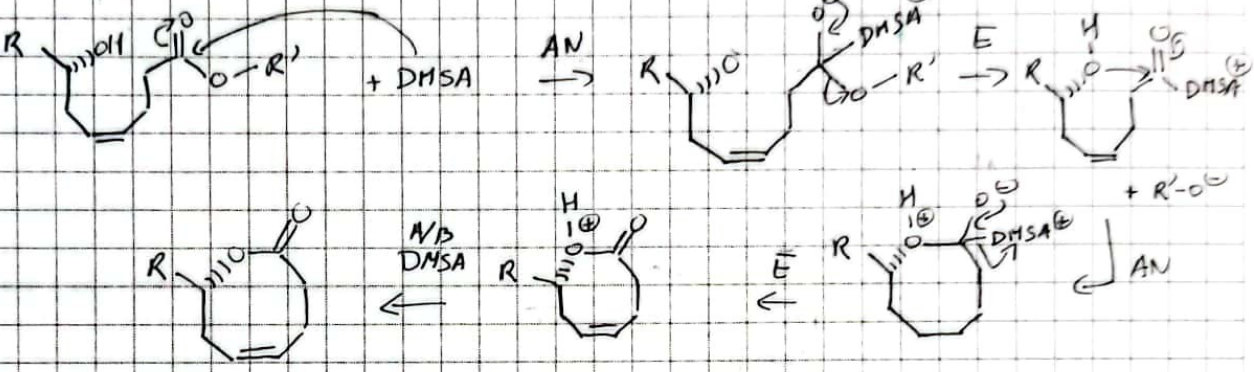
N° .../...

Ex 2

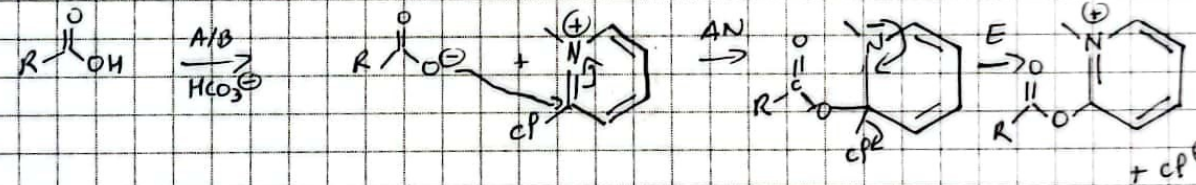
1. 

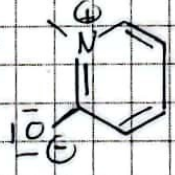
2. 

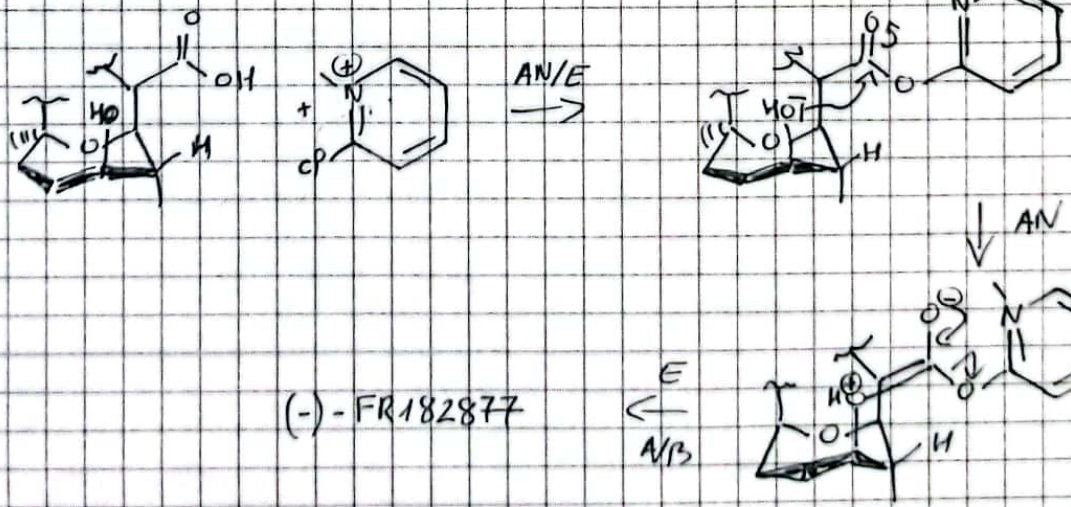
site nucléophile car doublet n-l plus disponible

3. 

2 sites électrophiles mais celui de droite est plus encombré et désactivé par le cycle et son effet +M ⇒ réac° régiosélective

4. 

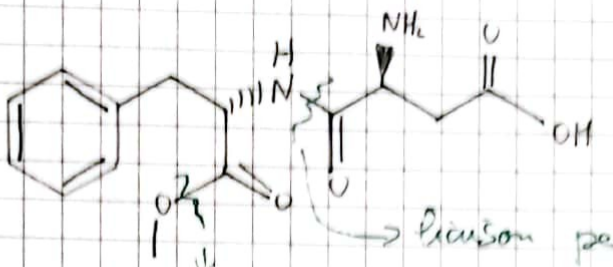
5. Rôle d'activateur de l'acide carboxylique en produisant un bon groupe partant  stabilisé par mésomérie

6. 

(-)-FR182877

N° .../...

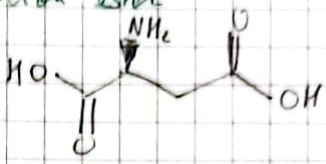
Ex3



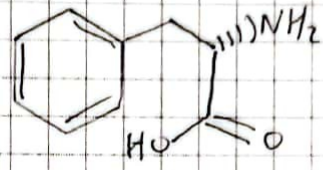
→ liaison peptidique

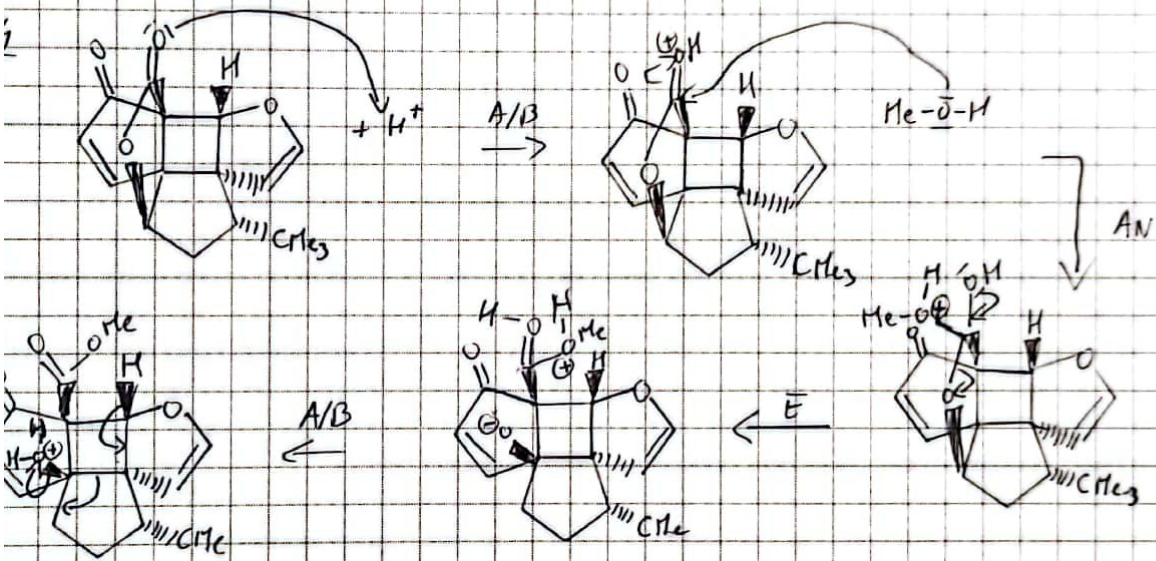
fonction ester

acide aspartique



phenylalanine

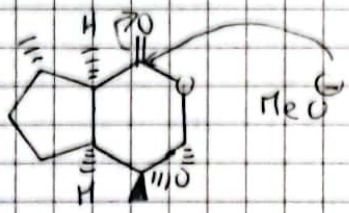




N°

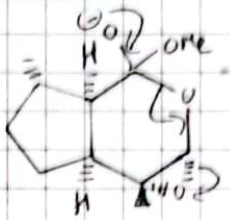
.../...

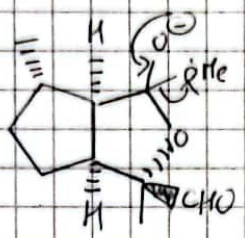
2.



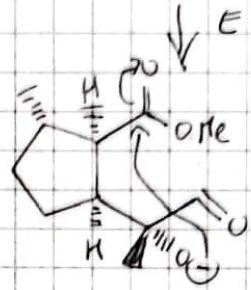
$MeO^{\ominus}$

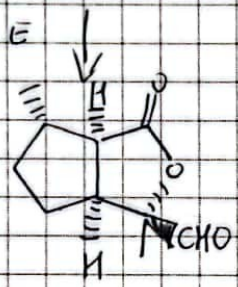
AN $\longrightarrow$





AN $\longleftarrow$





$+ MeO^{\ominus}$

ne rien écrire dans la partie barrée

N°

.../...