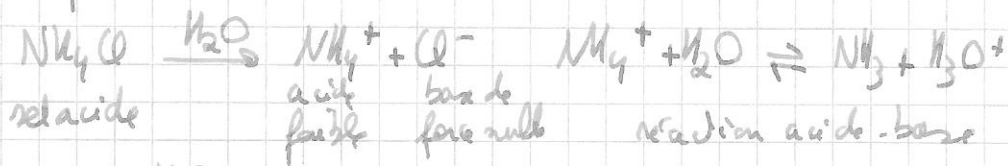
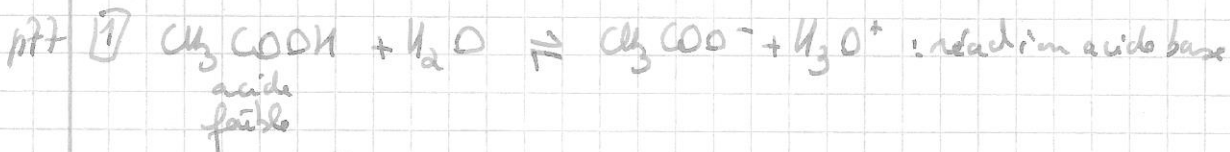
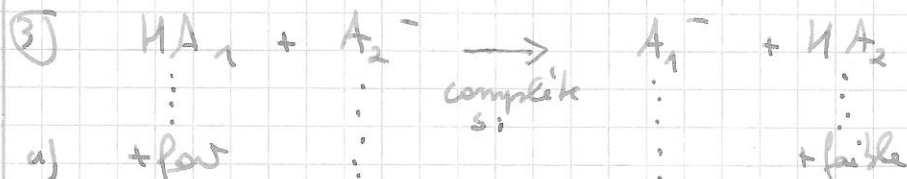


Chap 6



2) $K_c = \frac{K_{a1}}{K_{a2}}$



a)

$K_c = \frac{K_{a1}}{K_{a2}}$ si \nearrow alors $K_c \nearrow$ OUI
faible forte

b)

si $K_{bA_1^-} > K_{bA_2^-}$ alors $K_{aHA_1} < K_{aHA_2}$ car inv. prop
 $K_c = \frac{K_{a1}}{K_{a2}}$ si \searrow alors $K_c \searrow$ NON
 $K_w = K_a \cdot K_b$

c)

$K_{a1} < K_{a2}$ $K_c = \frac{K_{a1}}{K_{a2}}$ si \searrow alors $K_c \searrow$ NON

d)

$K_c > 10^3$ considérée comme complète

e)

acide fort $K_{a1} \gg$ base forte $K_{b2} \gg$ $K_{a2} \ll$

$K_c = \frac{K_{a1}}{K_{a2}}$ $\nearrow \nearrow$ OUI

5)



$K_c = \frac{K_{a1}}{K_{a2}} = \frac{K_{aH_2S}}{K_{aH_2CO_3}} = \frac{1 \cdot 10^{-7}}{4 \cdot 10^{-7}} = 0,25$

E

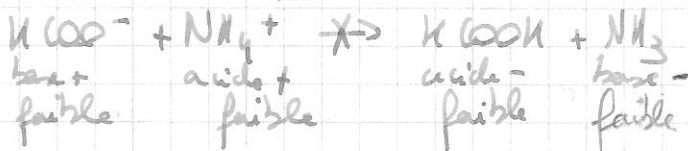
4) a) CH_3COOH acide faible et H_3O^+ acide fort non manque base

b) OH^- base forte et HNO_2 acide faible oui et complet car base forte
 $K_c = \frac{K_a \text{HNO}_2}{K_a \text{H}_2\text{O}} = \frac{5 \cdot 10^{-4}}{1,8 \cdot 10^{-6}} = 2,8 \cdot 10^2$

c) H_3O^+ acide fort et HCOOH acide faible non manque base

d) H_2O acide fort et HCO_3^- ampholyte peut faire base faible oui et complète car acide fort
 $K_c = \frac{K_a \text{H}_2\text{O}}{K_a \text{H}_2\text{CO}_3} = \frac{55,5}{4 \cdot 10^{-7}} = 1,4 \cdot 10^8$

e) HCOO^- base faible et NH_4^+ acide faible non prévisible par intuition donc calcul
 $K_c = \frac{K_a \text{NH}_4^+}{K_a \text{HCOOH}} = \frac{6 \cdot 10^{-10}}{1,8 \cdot 10^{-4}} = 3,3 \cdot 10^{-6}$ quasi impossible



ce n'est pas le sens favorable, cela va plutôt vers des acides et bases - forts que les réactifs.

f) OH^- base forte et SO_3^{2-} base faible non manque un acide

g) H_2S acide faible et OH^- base forte oui et complet car base forte
 $K_c = \frac{K_a \text{H}_2\text{S}}{K_a \text{H}_2\text{O}} = \frac{1 \cdot 10^{-7}}{1,8 \cdot 10^{-16}} = 5,5 \cdot 10^8$

6) CH_3COOH acide faible récupérer le + avec la base la + forte possible le + bas dans le tableau : CO_3^{2-}

NO_3^- et Cl^- sont des bases de forces nulles

parmi F^- et CO_3^{2-} la + bas est CO_3^{2-}

chap 6 (suite)

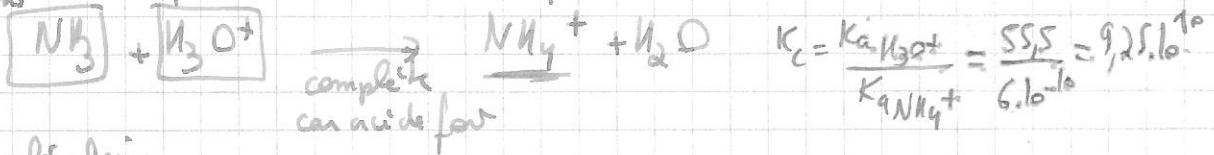
p77



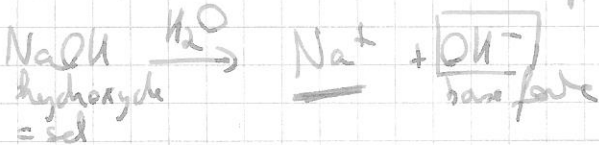
NH_3
base faible réagit peu



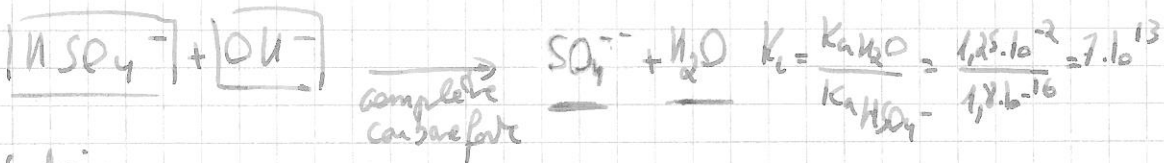
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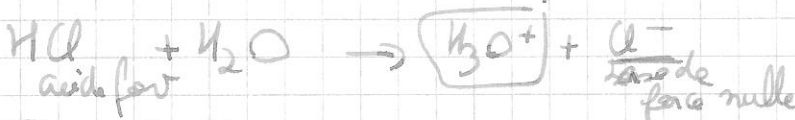
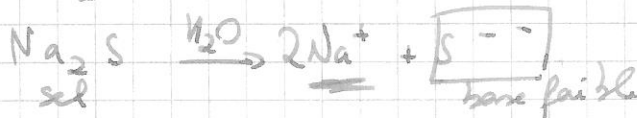
moléculaires



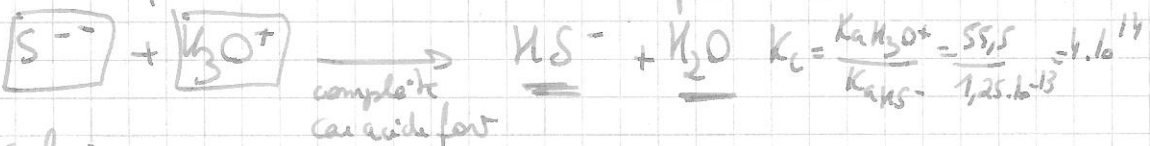
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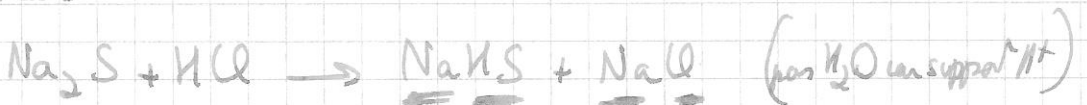
moléculaires



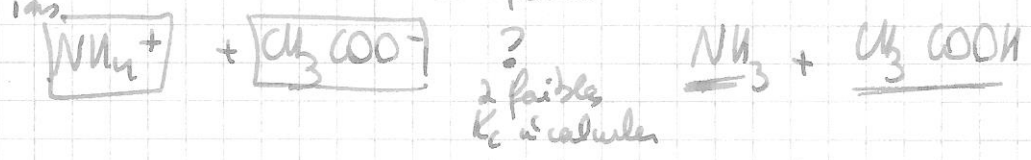
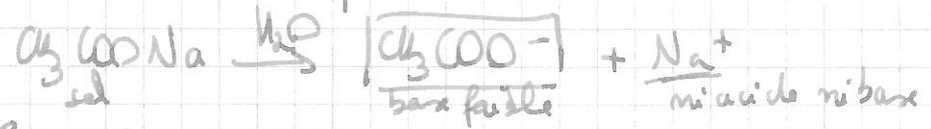
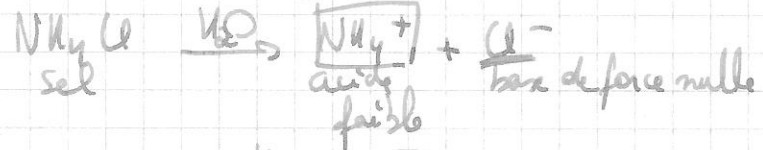
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moléculaires



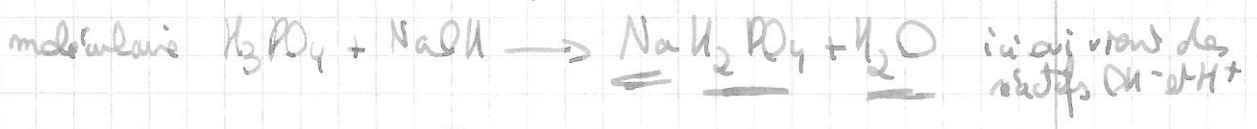
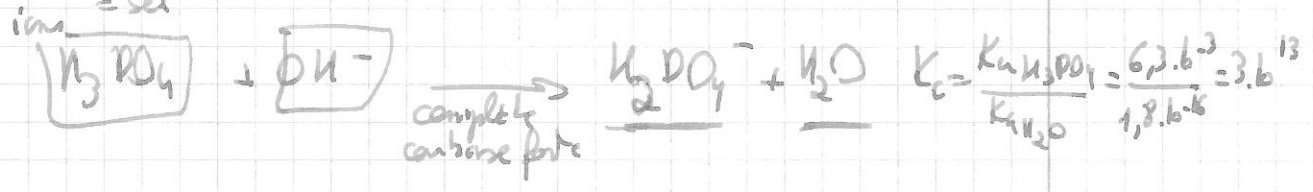
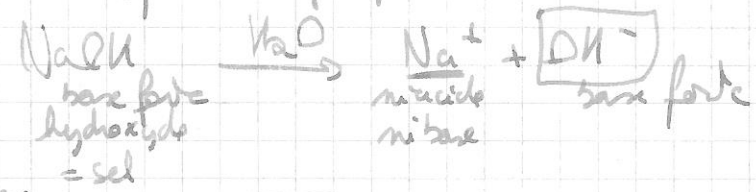
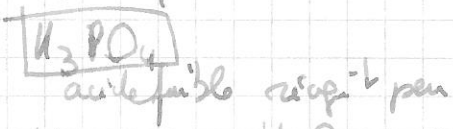
d) NH_4Cl et CH_3COONa



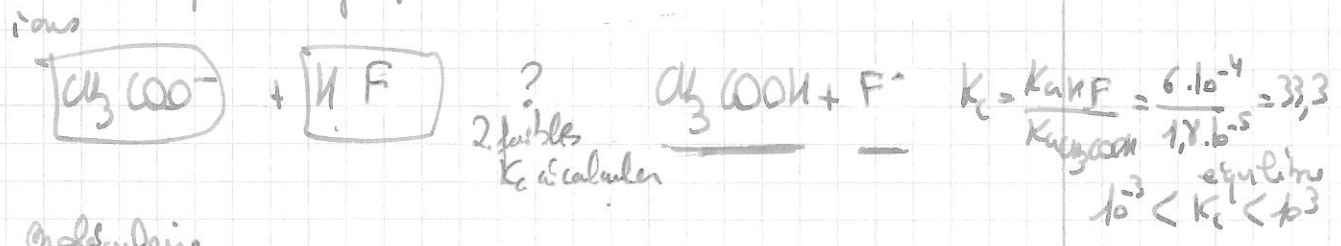
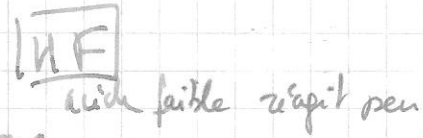
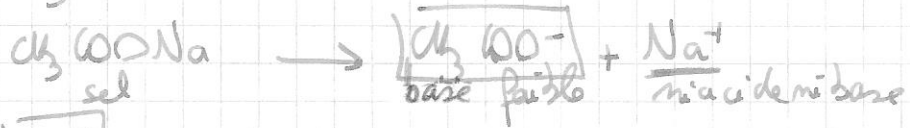
$K_c = \frac{K_a \text{NH}_4^+}{K_b \text{CH}_3\text{COO}^-} = \frac{6 \cdot 10^{-10}}{1,8 \cdot 10^{-5}} = 3,3 \cdot 10^{-5}$: impossible



e) H_3PO_4 et NaOH

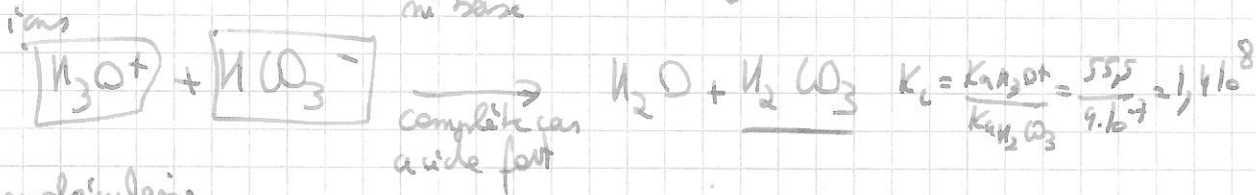
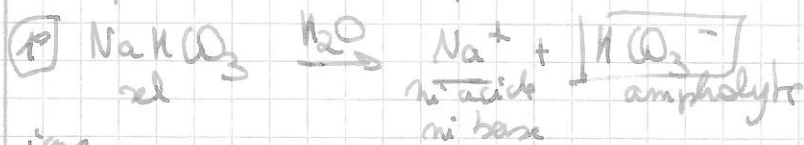
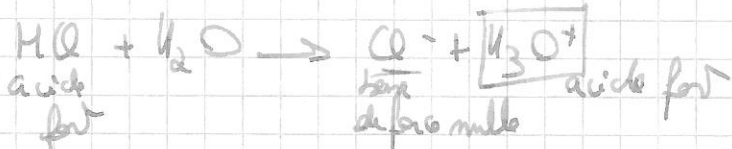


f) CH_3COONa et HF

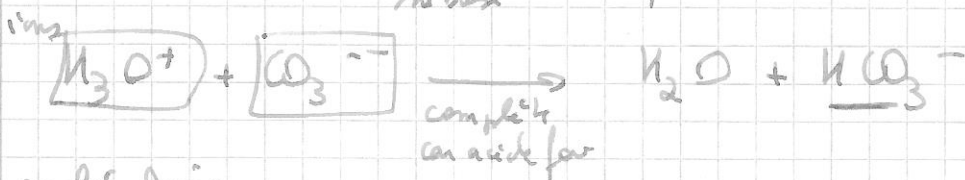
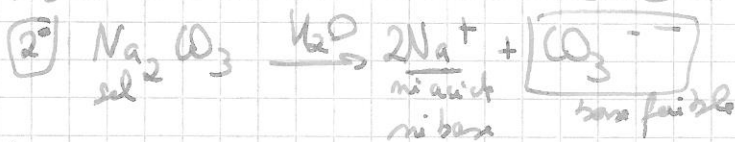


chap 6 suite

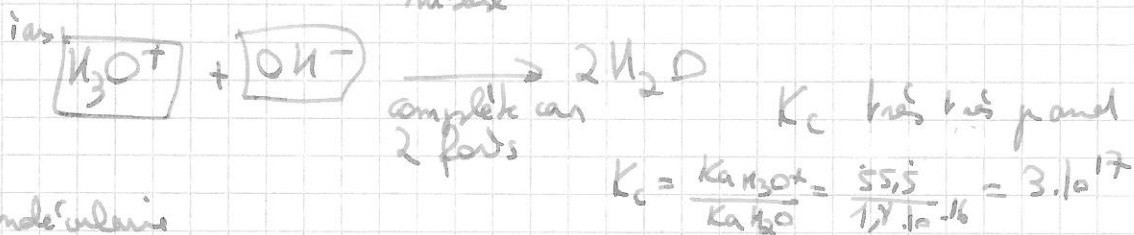
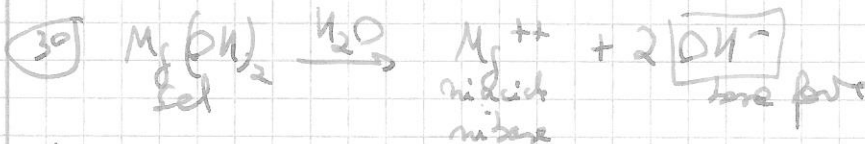
p77 8) Neutralisation acide et base



moléculaire



moléculaire



moléculaire



? V_s
 $C = 0,1 \text{ M}$
 $m = 500 \text{ mg} = 0,5 \text{ g}$
 $M = 58 \text{ g/mol}$
 $n = 0,00862 \text{ mol}$

no	0,01724	0,00862
Δn	-2,00862	-1,00862

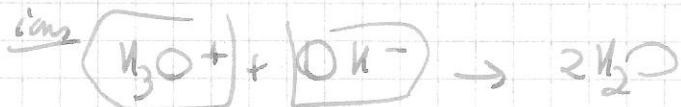
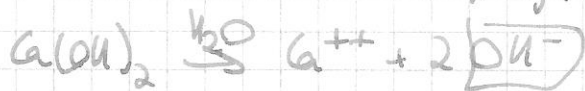
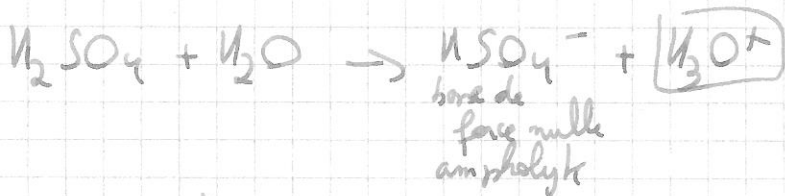
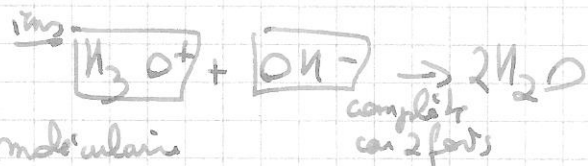
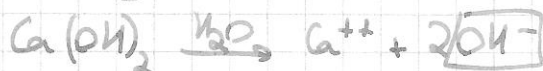
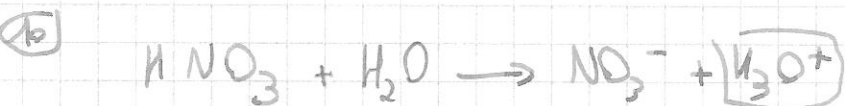
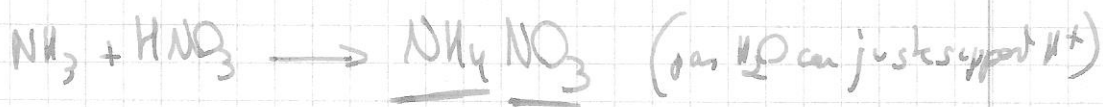
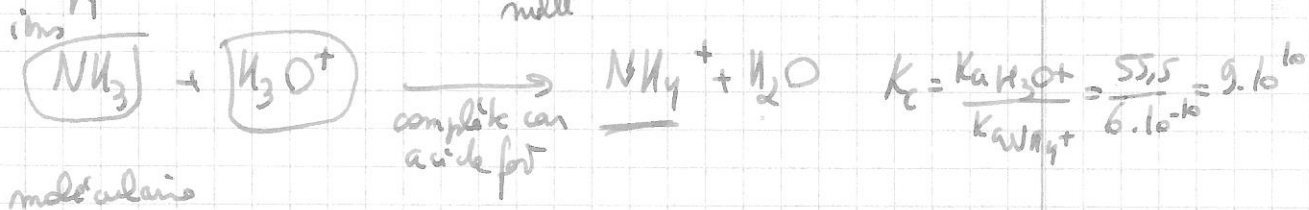
np 0 0

$n = C \cdot V_s$

$V_s = \frac{n}{C} = \frac{0,01724}{0,1} = 0,1724 \text{ L} = 172 \text{ mL}$



NH_3 base faible réagit peu



moléculaire

