

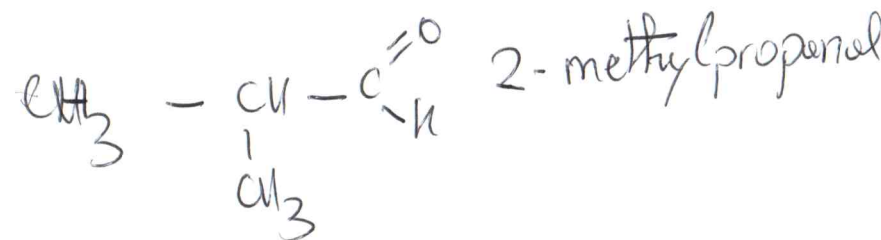
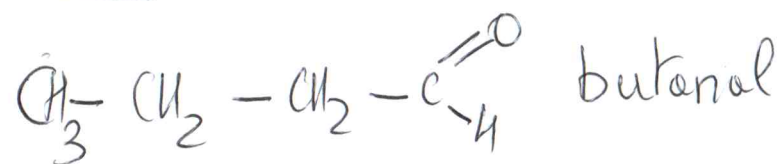
Exercice 1

- a) 2-methylbutanal
- b) hexan-3-one
- c) pentanal

Exercice 2

- a) $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \overset{\overset{\text{O}}{\parallel}}{\text{C}} - \text{H}$
- b) $\text{CH}_3 - \underset{\underset{\text{O}}{\parallel}}{\text{C}} - \text{CH}_2 - \text{CH}_2 - \text{CH}_3$
- c) $\text{CH}_3 - \underset{\underset{\text{H}}{\parallel}}{\text{C}} - \text{CH}_2 - \text{CH}_3$
- d) $\text{CH}_3 - \underset{\underset{\text{CH}_3}{\mid}}{\overset{\overset{\text{CH}_3}{\mid}}{\text{CH}_2}} - \overset{\overset{\text{O}}{\parallel}}{\text{C}} - \text{H}$

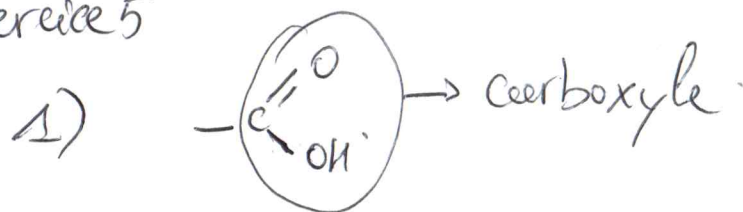
Exercice 3



Exercice 4

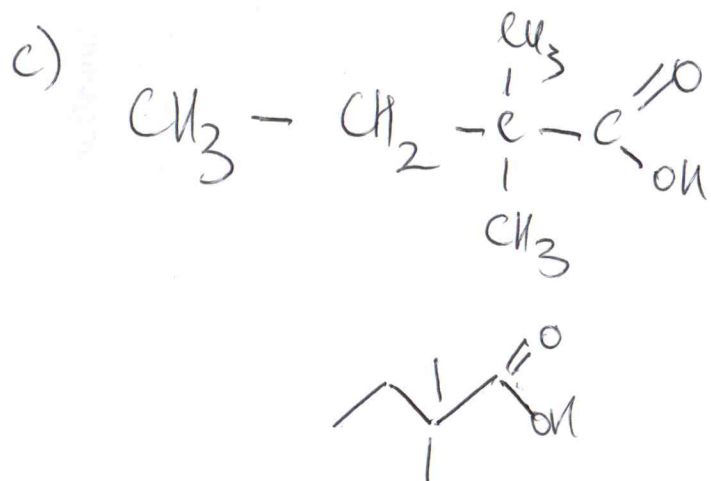
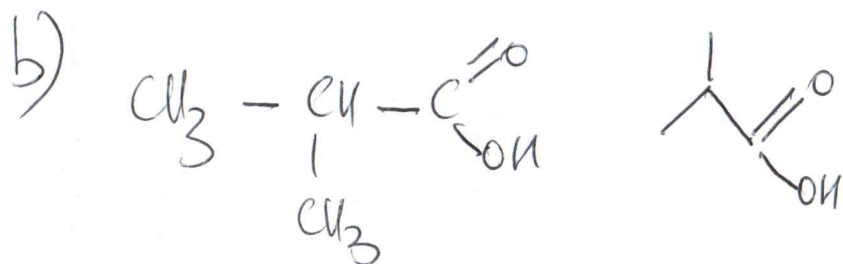
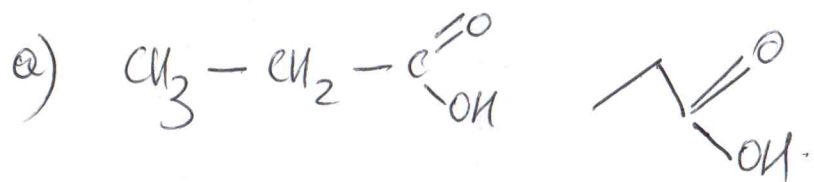
- a) 2,3-dimethylbutanal
- b) 2,2-dimethylpropanal
- c) 2,4-dimethylpentan-3-one

Exercice 5



- ~~2/6~~
 a) acide méthanoïque
 c) acide propoïque } 2 acides
 parmi les 3

Exercice 6



Exercice 7

1) famille des acides

2) $\approx 3300 \text{ cm}^{-1}$ O-H

3000 cm^{-1} } ---C---
 1500 cm^{-1} } |
 tétra

1050 cm^{-1} C-O

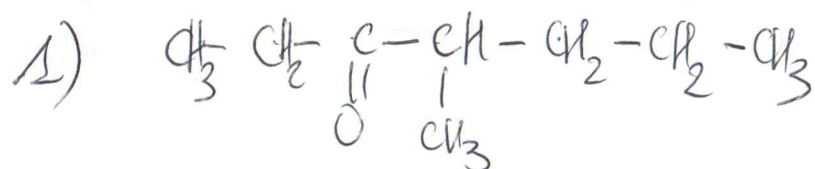
Exercice 8

on voit vite que c'est (c) car seule molécule sans BL à 3300 cm^{-1} mais on fait l'interprétation du spectre qd m

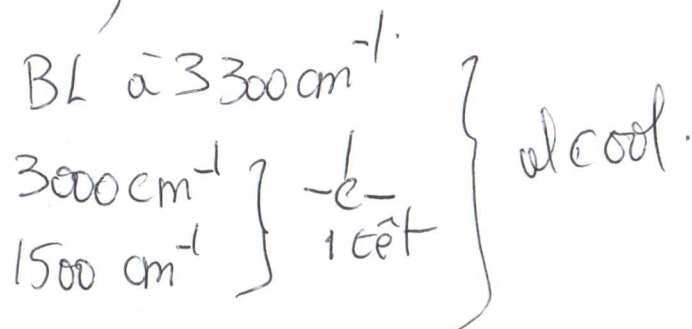
3000 cm^{-1} } ---C--- & C= à 3000 cm^{-1}
 1500 cm^{-1} } |
 tétra

3/6 $C=O$ à 1800 cm^{-1}

Exercice 9

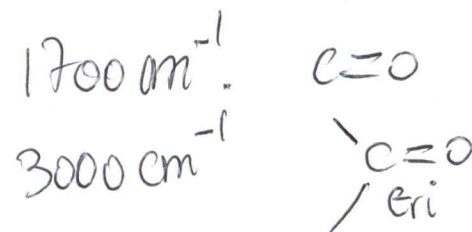
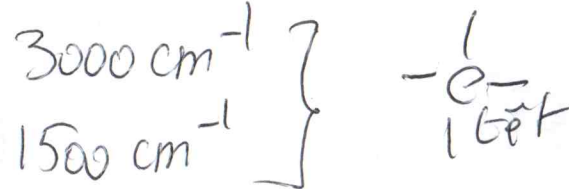
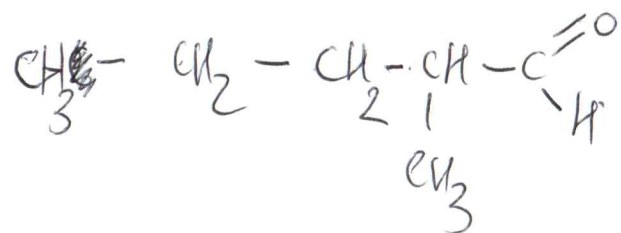


2) non, car

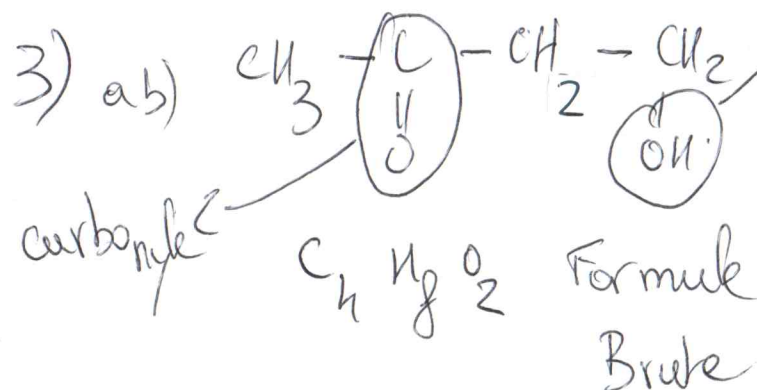
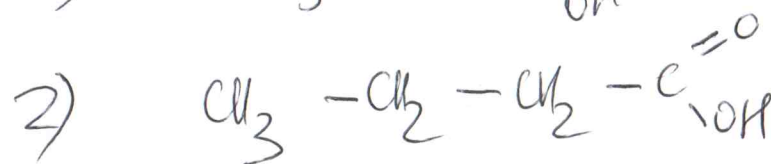
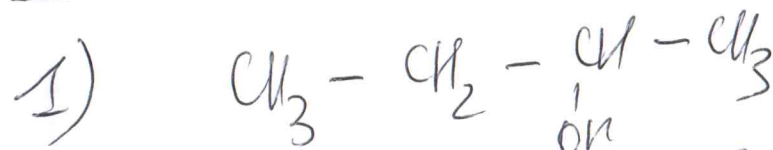


1400 cm^{-1} C-O

Exercice 10



Exercice 11



hydroxyle
 Formule
 semi-
 développée

carbonyle

(4/6)

5) spectre 1

BL moyenne vers 3500 cm^{-1} O-H }
 3000 cm^{-1} } -C-
 1500 cm^{-1} } 16er } Butan-2-ol
 1000 cm^{-1} C-O

spectre 2

3000 cm^{-1} } -C-
 1500 cm^{-1} } 16er } tout pour
d'acide &
 3000 cm^{-1} C= } molécule 3
1700 cm^{-1} C=O

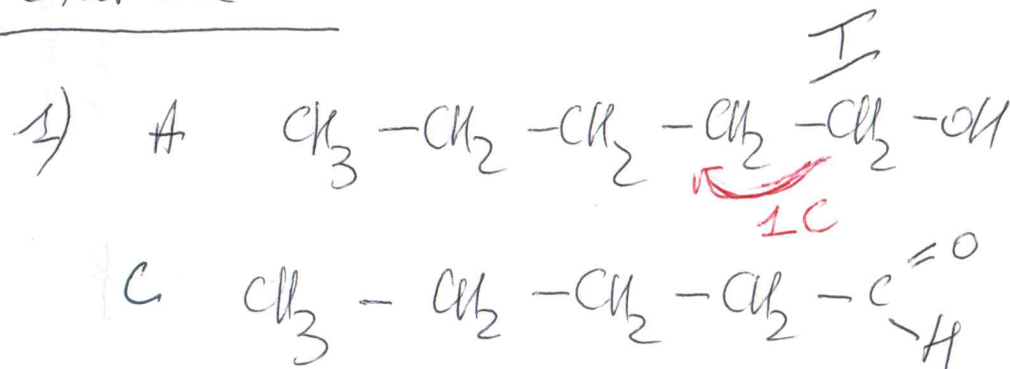
BL 3500 cm^{-1} intensité moyenne O-H
 1000 cm^{-1} C-O

Je penche pour la molécule 3, car
pour 1 acide la BL est ④ imp

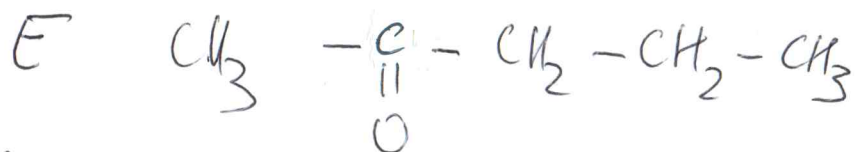
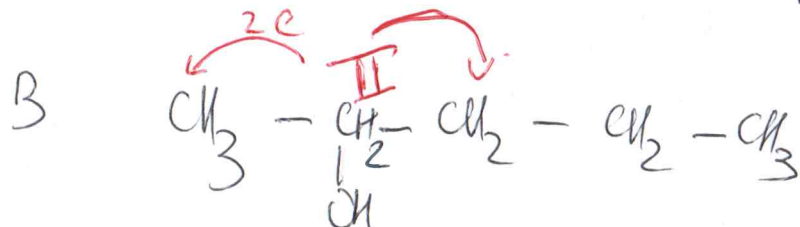
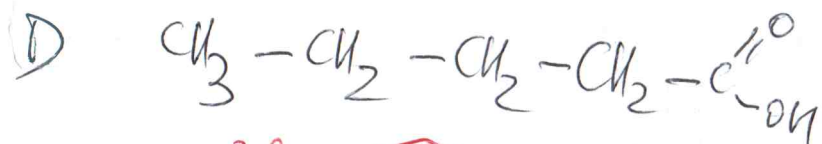
spectre 3

BL très imp à 3000 cm^{-1} & OH de l'acide
 3000 cm^{-1} } -C-
 1500 cm^{-1} } 16er } acide
butanoïque
 3000 cm^{-1} C= }
1700 cm^{-1} C=O
 900 cm^{-1} C-O

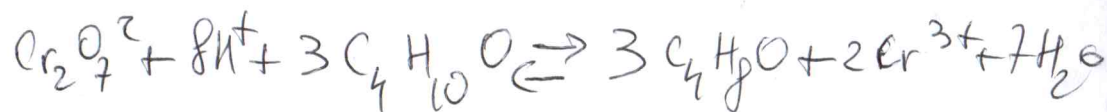
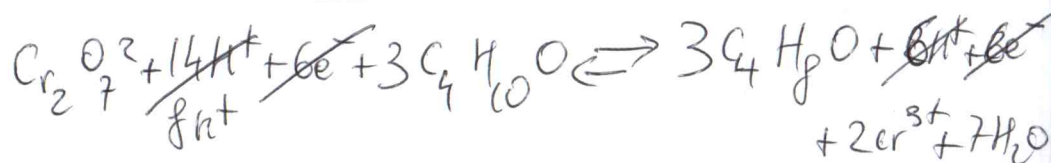
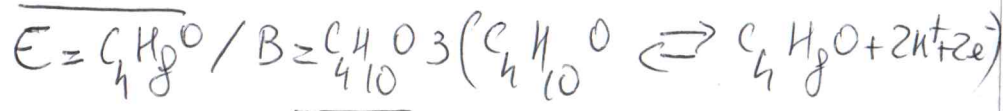
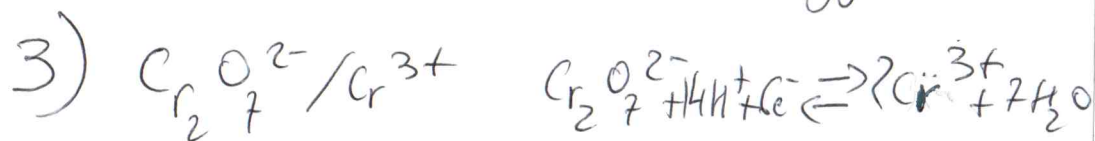
Exercice 12



5/6



2) classe repérée par le chiffre Romain



4) $m_{\text{Al}} = \rho_{\text{Al}} V_{\text{Al}} = 0,81 \times 27 = 20 \text{ g}$

$n_1 = \frac{m_{\text{Al}}}{M_{\text{Al}}} = 0,027 \text{ mol} = 27 \text{ mmol}$

$n_2 = \frac{m}{M} = 0,010 \text{ mol} = 10 \text{ mmol}$

5)

ER		$3\text{C}_4\text{H}_{10}\text{O} + \text{Cr}_2\text{O}_7^{2-} + 8\text{H}^+ \rightleftharpoons 3\text{C}_4\text{H}_8\text{O} + 2\text{Cr}^{3+} + 7\text{H}_2\text{O}$				
EI	$x=0$	n_1	n_2	Excès	0	0
RcO	x	$n_1 - 3x$	$n_2 - x$	E	$3x$	$2x$
EF	$x = x_{\text{max}}$	$n_1 - 3x_{\text{max}}$	$n_2 - x_{\text{max}}$	E	$3x_{\text{max}}$	$2x_{\text{max}}$

si l'alcool est limitant

$n_1 - 3x_{\text{max}} = 0 \Rightarrow x_{\text{max}} = \frac{n_1}{3}$

$x_{\text{max}} = 9 \text{ mmol}$

si le dichromate est limitant $\rightarrow$ limitant

$n_2 - x_{\text{max}} = 0 \Rightarrow x_{\text{max}} = 10 \text{ mmol}$

6/8 $x_{\max} = 7 \text{ mmol}$ et l'alcool est limitant

$$n(\text{butanone}) = 3 x_{\max} = 27 \text{ mmol}$$

$$m = \frac{n(\text{butanone})}{n} = 27 \times 10^{-3} \times 72$$

$$\underline{m(\text{butanone}) = 1,3 \text{ g.}}$$