

RESOLUCIÓN EXAMEN IAVA - QUÍMICA 6° - 26/4/18

Q6-1

IAVA 26/4/18

① $2 \text{NO}_2(\text{g}) \rightleftharpoons \text{N}_2\text{O}_4(\text{g})$ $\Delta H^\circ = -58,2 \text{ kJ}$
 (PARDO) (INCOLORO)

(a)

INI	0,60	0
	-0,40	+0,20
	0,20	0,20

$K_c = \frac{0,2}{(0,4)^2} = 5$

INCORRECTA: $\frac{5}{2}$
 (SI NO SE TUVO EN CUENTA ESTEQUIMOMETRÍA)

(b) (b) $\uparrow T \Rightarrow$ FAVORECE ENDO $\Rightarrow$ " $\leftarrow$ "
 (2) $\uparrow P \Rightarrow$ " $\rightarrow$ "
 (3) OSCURECE Y ACIARA

② (a) $\text{HNO}_3 \longrightarrow \text{H}^+ + \text{NO}_3^-$ (FUERTE)
 $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH} \rightleftharpoons \text{H}^+ + \text{CH}_3\text{CH}_2\text{CH}_2\text{COO}^-$ (DÉBIL)

(b) $\text{HNO}_3 \rightarrow [\text{H}^+] = 0,75 \text{ mol/l}$ (FUERTE)
 $\rightarrow \text{pH} = 0,125$ $[\text{OH}^-] = 7,33 \times 10^{-14} \text{ mol/l}$

Parrot

AC. WOTSO :

AH	H ⁺	A ⁻
0,75	0	0
-x	+x	+x
0,75-x	x	x

$$K_a = 1,5 \times 10^{-4}$$

$$1,5 \times 10^{-4} = \frac{x^2}{0,75-x}$$

$$x^2 = 0,75 \cdot 1,5 \times 10^{-4}$$

$$x = \sqrt{1,05 \times 10^{-4}} \approx 1,02 \times 10^{-2} \text{ mol/l}$$

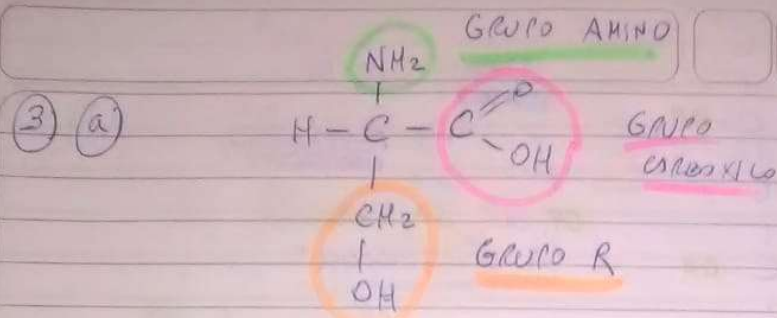
$$pH = 1,99$$

$$[OH^-] = 10^{-12} \text{ mol/l}$$

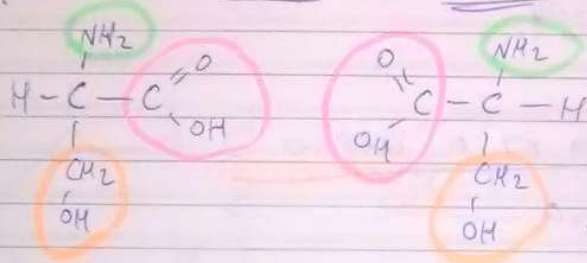
$$[OH^-] = 9,8 \times 10^{-13} \text{ mol/l}$$

Flex

Reptus

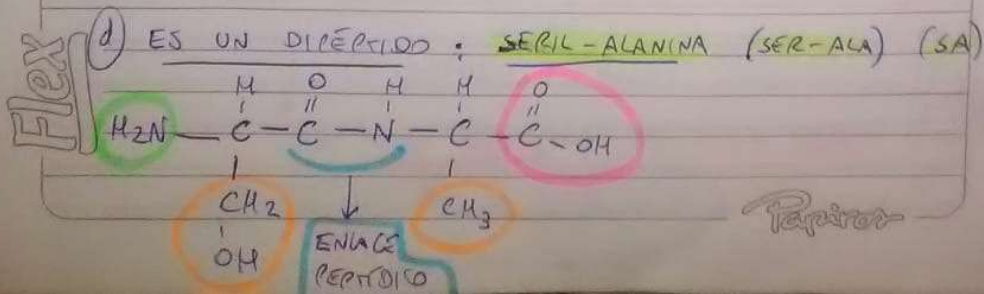
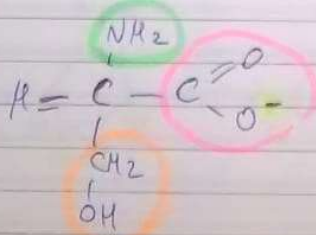


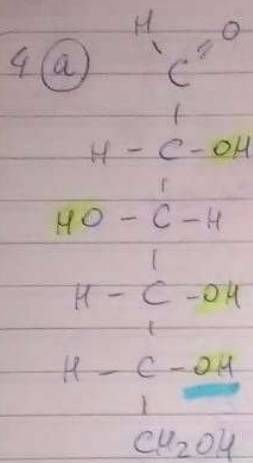
(b) SI, por ser quiral el C (2)



(c) PUNTO ISOELÉCTRICO : 5.08

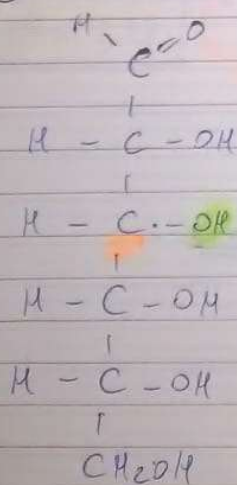
A pH = 7.00 predomina FORMA ANIÓNICA :





D(+) GLUCOSA
 DEXTROGLUCA
 OH del 5º CARBONO
 "A LA DERECHA"

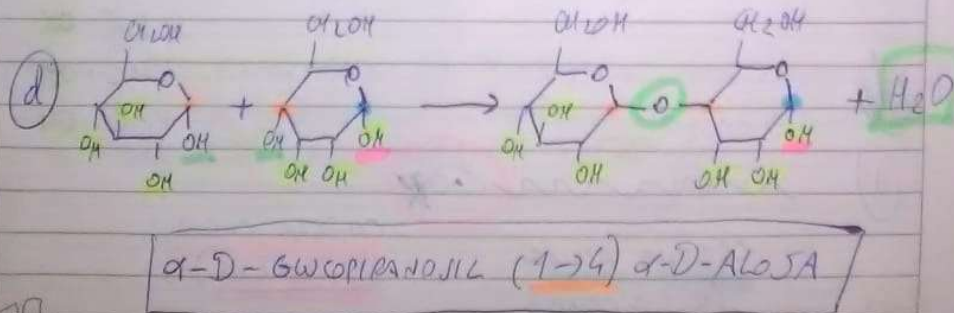
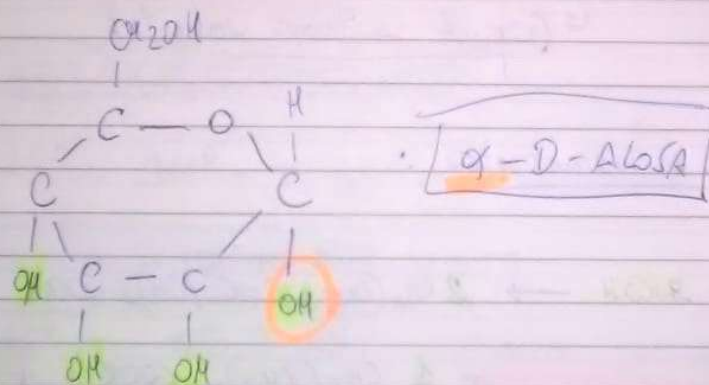
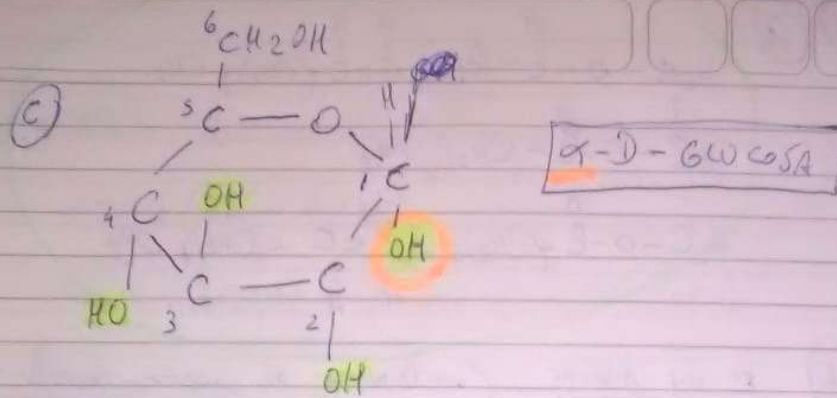
(b) EPÍMERO EN EL CARBONO 3



D(+) ALDOSA

Flex

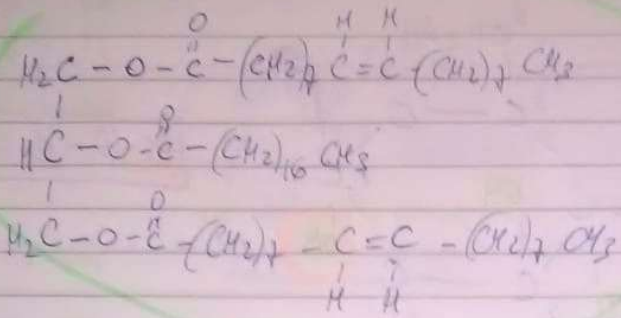
Reprint



Flex

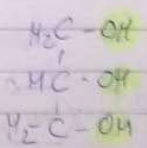
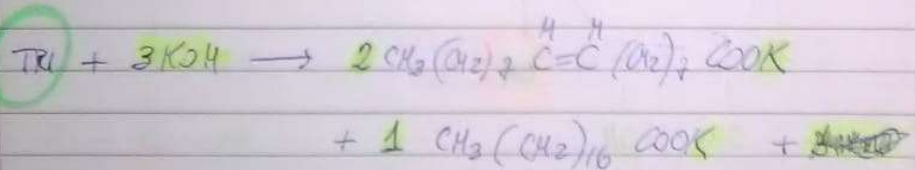
(DISACARIDO FORMADO)
 TIENE PODER REDUCTOR POR TENER LIBRE
 EL OH del C ANOMERICO de la Primer
 2ª MOLÉCULA (ALLOSA)

5) a)

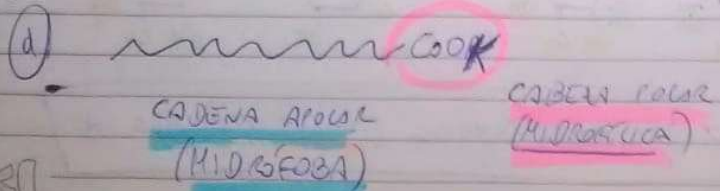


b) ES UN ACEITE (predomina de gran insaturación)
 ↳ (líquido a temp ambiente)

c) ET. DE SAPONIFICACIÓN:

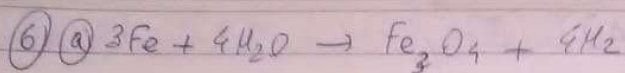


d)



Flex

República



$$-3(I) + (II) - 4(III)$$

$$\Delta H = -3(24,7) + (-317,6) - 4(-241,8)$$

$$\Delta H = 575,5 \text{ KJ}$$

$$(b) \Delta G^\circ = \Delta H^\circ - T \cdot \Delta S^\circ$$

$$\Delta G^\circ = \Delta H^\circ - T \cdot \Delta S^\circ$$

$$= -106 - 298 \cdot 0,058$$

$$\Delta G^\circ = -123,3 \text{ KJ}$$

(TRAHA: UNIDADES)

(c) SI ES ESPONTÁNEA (A TEMPERATURA AMBIENTE)

$$\text{PORQUE } \Delta G^\circ = -123,3 \text{ KJ} < 0$$

Flex

Paper

(7) DATA

$$(a) \quad V = K \cdot [A]^{\alpha} \cdot [B]^{\beta}$$

$$\begin{aligned} \text{I)} \quad \frac{2,54 \times 10^{-4}}{4,22 \times 10^{-4}} &= \frac{K \cdot (0,10)^{\alpha} \cdot (0,05)^{\beta}}{K \cdot (0,05)^{\alpha} \cdot (0,05)^{\beta}} \\ \text{II)} \end{aligned}$$

$$2 = 2^{\alpha} \Rightarrow \alpha = 1$$

(I) x (II)

$$\frac{5,08 \times 10^{-4}}{2,54 \times 10^{-4}} = \frac{K \cdot (0,10)^{\alpha} \cdot (0,10)^{\beta}}{K \cdot (0,10)^{\alpha} \cdot (0,05)^{\beta}}$$

$$\Rightarrow 2 = 2^{\beta} \Rightarrow \beta = 1$$

$$V = K \cdot [A] \cdot [B]$$

(b) USE III

$$5,08 \times 10^{-4} \frac{\text{mol}}{\text{l.s}} = K \cdot \left(0,10 \frac{\text{mol}}{\text{l}}\right) \left(0,10 \frac{\text{mol}}{\text{l}}\right)$$

$$5,08 \times 10^{-2} \frac{\text{l}}{\text{mol.s}} = K$$

Flex

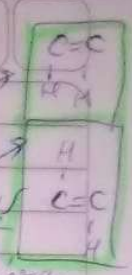
(c) si $\Delta T \Rightarrow \boxed{V \uparrow}$

(aumenta la probabilitate de coliziuni externe
si mișcă moleculele cu > viteză)

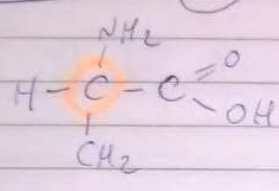
Q6-5

(8) (a) (1) NO ESTER → NO

(2) " OLEIC → NO (SI) CIS/TRANS



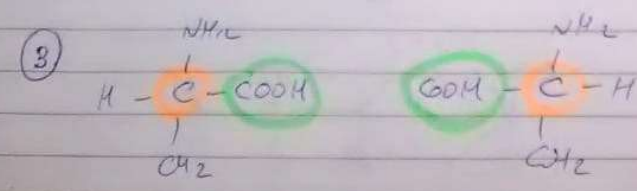
(3) ALANINA → (SI) (CARBONO QUINEL) OPTICA



(4) GLICINA → NO

(b) (2) $CH_3(CH_2)_7 - \overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}} = \overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}} - (CH_2)_7 COOH$ CIS-OLEIC

$CH_3(CH_2)_7 - \overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}} = \overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}} - (CH_2)_7 COOH$ TRANS-OLEIC



Flex

Paper

