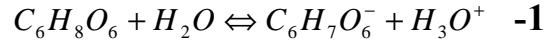


## الأجوبة

### تمرين 1:



$$K = \frac{[C_6H_7O_6^-]_{\acute{e}q} * [H_3O^+]_{\acute{e}q}}{[C_6H_8O_6]_{\acute{e}q}} \quad -2$$

### جدول التقدم

$$[H_3O^+]_{\acute{e}q} = 10^{-pH} = 10^{-3,01} = 9,77.10^{-4} \text{ mol.L}^{-1} \quad -4$$

$$\tau = \frac{x_{\acute{e}q}}{x_{\text{max}}} = \frac{[H_3O^+]_{\acute{e}q} * V_1}{C_1 * V_1} = 9,77.10^{-3} = 0,98\% \quad -5$$

$$[C_6H_7O_6^-]_{\acute{e}q} = [H_3O^+]_{\acute{e}q} = 10^{-pH} = 9,77.10^{-4} \text{ mol.L}^{-1} \quad -6$$

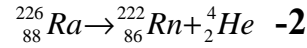
$$[C_6H_8O_6]_{\acute{e}q} = C_1 - \frac{x_{\acute{e}q}}{V_1} = C_1 - [H_3O^+]_{\acute{e}q} = 9,9.10^{-2} \text{ mol.L}^{-1}$$

$$K = \frac{(9,77.10^{-4})^2}{9,9.10^{-2}} = 9,64.10^{-6} \quad -7$$

### تمرين 2:

#### -I

$$88p + 138n \quad -1$$



$$E = \{m(\text{Rn}) + m(\text{He}) - m(\text{Ra})\}C^2 = -4,86\text{Mev} \quad -3$$

$$N(t) = N_0 e^{-\lambda t} \quad -4$$

$$\frac{N(t)}{N_0} = e^{-\lambda t} = \exp\left(\frac{\ln 2}{t_{1/2}} t\right) = 0,99 \quad -5$$

$$\frac{a(t)}{a_0} = \frac{\lambda N(t)}{\lambda N_0} = \frac{N(t)}{N_0} = 0,99 \quad -6$$

أي أن  $a(t) = 0,99a_0 \approx 1a_0$  إذن نشاط العينة بعد مرور 10 سنوات يساوي تقريبا  $a_0$

#### -II

$$a(t) = \lambda N(t) \quad -1$$

$$N = \frac{m}{M} N_a = 2,66.10^{21} \quad -2$$

$$a = \lambda N = \frac{\ln 2}{t_{1/2}} N = 3,59.10^{10} \text{ Bq} \quad -3$$

$$1\text{Curie} = 3,59.10^{10} \text{ Bq} \quad -4$$

#### -III

$$\tau = 5,5 \text{ j} \quad -1$$

أ- التعريف.

$$\text{ب- } t_{1/2} = \tau \ln 2$$

$$\text{ت- } t_{1/2} = 5,5 \ln 2 = 3,81 \text{ j}$$