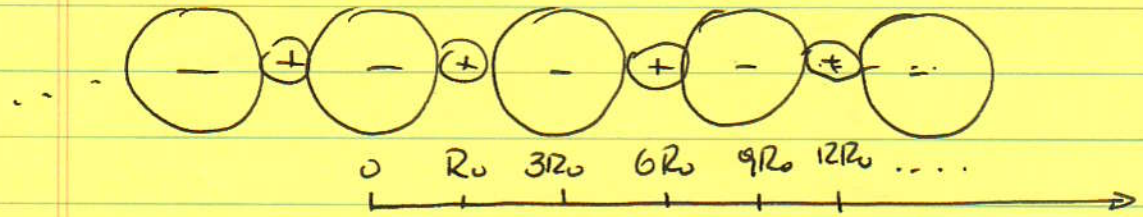
RESPUESTAS

PREGUNTA 1



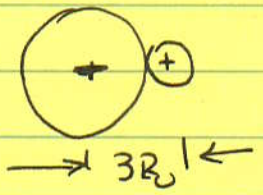
Energía Potencial del cristal.

$$V_c = -\frac{2q^2}{R_0}\left[\frac{1}{3} - \frac{1}{6} + \frac{1}{9} - \frac{1}{12} + \frac{1}{15} - \frac{1}{18} + \cdots\right]$$

o bien $$V_c = -\frac{2q^2}{3R_0}\left[1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4} + \frac{1}{5} - \cdots\right]$$

$$V_c = -\frac{2}{3}\frac{q^2}{R_0}\sum_{i=1}^{\infty}\frac{(-1)^{K-1}}{K} = -\frac{2}{3}\frac{q^2}{R_0}\ln 2 \quad \text{3 ptos.}$$

Energía de la molécula diatómica



$$V_{DIAT} = -\frac{q^2}{3R_0} \quad \text{1 pto.}$$

Ganancia de energía

$$|\Delta E| = |V_c - V_{DIAT}| = \frac{q^2}{3R_0}(2\ln 2 - 1) = 0.386\left(\frac{q^2}{3R_0}\right)$$

$$\Delta E = \frac{0.386 \times 332.01}{3 \times 0.95} = 45.00 \left[\frac{Kcal}{mol}\right] \quad \text{1 pto.}$$

Constante de Madelung $M = 2\ln 2$ 1 pto.