Related Problems

Question 2

Calculate the energy required for the process :

$He^{+}fe) \rightarrow He^{2+}(g) + e^{-}$

The ionisation energy' for the H atom in the ground state is 2.18×10^{-18} J $atom^{-1}$

Answer:

The expression for the ionisation energy atom :

$$E_n = \frac{2{\cdot}18 \times 10^{-18} \times Z^2}{n^2} \text{ J atom}^{-1}$$

For H atom (Z = 1), $E_n = 2.18 \times 10^{-18} \times (l)^2$ J $atom^{-1}$ (given)

For He^{+} ion (Z = 2), $E_n = 2.18 \times 10^{-18} \times (2)^2 = 8.72 \times 10^{-18}$ J $atom^{-1}$ (one electron species)