

Key & concept

⇒ Total energy of the electron in an atom is negative indicating that it is bound.

$$B.E_n = -E_n = \frac{13.6 \text{ eV}}{n^2}$$

$$E_n \propto \frac{1}{n^2}$$

⇒ radius of n^{th} circular orbit

$$r_n \propto n^2$$

⇒ Total emission spectral lines

$$\text{From } n_1 = n \text{ to } n_2 = 1 \text{ state} = \frac{n(n-1)}{2}$$

$$\text{From } n_1 = n \text{ to } n_2 = m \text{ state} = \frac{(n-m)(n-m+1)}{2}$$