Q1: Energy required for the electron excitation in Li^{++} from the first to the third Bohr orbit is

(a) 12.1 eV

(b) 36.3 eV

(c) 108.8 eV

(d) 122.4 eV

Solution

Using, $E_n = -(13.6Z^2/n^2)$ eV

Here, Z = 3 (For Li^{++})

Therefore, $E_1 = -(13.6(3)^2/1^2) = -122.4$ eV

and $E_3 = -(13.6(3)^2/3^2) = -13.6$ eV

$\Delta E = E_3 - E_1 = -13.6 + 122.4 = 108.8$ eV

Answer: (c) 108.8 eV