5. Ionisation energy of He^+ is 19.6×10^{-18}J atom^{-1}. The energy of the first stationary state (n = 1) of Li^{2+} is

(1)8.82×10^{-17} J atom^{-1}

(2) 4.41×10^{-16} J atom^{-1}

(3) -4.41×10^{-17} J atom^{-1}

(4) -2.2×10^{-15} J atom^{-1}

Solution:

Given I.E = 19.6×10^{-18}

I.E $\propto z^2$

(I.E) $Li^{2+}/He^+ = (9/4)\times19.6\times10^{-18}$

$= -4.41\times10^{-17}$

Hence the option (3) is the answer.