Previous Year JEE Problems with Explanations

The radius of the second Bohr orbit for hydrogen atom is:

(Planck's Const. h = 6.6262 × 10^{-34} Js; mass of electron = 9.1091 × 10^{-31} kg; charge of electron (e) = 1.60210 × 10^{-19} C; permittivity of vacuum (ε_0) = 8.854185 × 10^{-12} kg^{-1} m^{-3} A^2)

A 4.76 $\mathring{A}$

B 2.12 $\mathring{A}$

C 0.529 $\mathring{A}$

D 1.65 $\mathring{A}$

Explanation

Radius of an atom in n^{th} orbit,

$r_n = 0.529 \times \frac{n^2}{Z}$

Here n = 2

and for hydrogen atom, atomic number (Z) = 1

$\therefore r_2 = 0.529 \times \frac{2^2}{1} = 2.12\ \mathring{A}$