

Use Bohr's law

$$m_e \cdot V_n \cdot r_n = \frac{n \cdot h}{2 \cdot \pi}$$

$$m_e \cdot \omega_n \cdot r_n^2 = \frac{n \cdot h}{2 \cdot \pi}$$

Acceleration of electron

$$a_n = \frac{V_n^2}{r_n} = \omega_n^2 \cdot r_n$$

$$\frac{q_e^2}{4\pi \cdot \epsilon_0 \cdot r_n^2 \cdot m_e} = \omega_n^2 \cdot r_n$$

Solve this equations

$$\omega_n = \frac{1}{2 \cdot n^3 \cdot h^3} \cdot \frac{m_e}{\epsilon_0^2} \cdot q_e^4 \cdot \pi$$

$$r_n = n^2 \cdot h^2 \cdot \frac{\epsilon_0}{q_e^2 \cdot m_e \cdot \pi}$$

The electron current is

$$I = q_e \cdot \frac{\omega_n}{2 \cdot \pi}$$

$$I = \frac{1}{4} \cdot \frac{q_e^5}{n^3 \cdot h^3} \cdot \frac{m_e}{\epsilon_0^2}$$

Use Biot-Savart law:

$$B = \mu_0 \cdot \frac{I}{2 \cdot r_n}$$

$$B = \frac{1}{8} \cdot \mu_0 \cdot \frac{q_e^7}{n^5 \cdot h^5} \cdot \frac{m_e^2}{\epsilon_0^3} \cdot \pi$$

Answer is 12.5 T

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