Useful Equations and Constants:

$c = \nu\lambda$ $\quad E = h\nu$ $\quad \lambda = \frac{h}{p}$

K.E. $= h\nu - h\nu_0$ $\quad \widetilde{\nu} = Z^2\widetilde{R}_{\mathrm{H}}\left(\frac{1}{n_1^2} - \frac{1}{n_2^2}\right)$ $\quad \widetilde{\nu} = \frac{1}{\lambda}$

$\widetilde{R}_{\mathrm{H}} = \frac{e^2}{8\pi\varepsilon_0 a_0 hc}$ $\quad \Delta q\Delta p \geq \frac{\hbar}{2}$ $\quad \Delta E\Delta t \geq \frac{\hbar}{2}$

$\Delta\phi\Delta L \geq \frac{\hbar}{2}$ $\quad \hat{H}\psi(x,y,z) = E\psi(x,y,z)$ $\quad \hat{H}\Psi(x,y,z,t) = i\hbar\frac{\partial\Psi(x,y,z,t)}{\partial t}$

$\langle A\rangle = \frac{\int\psi^*\hat{A}\psi d\tau}{\int\psi^*\psi d\tau}$ $\quad \psi_n = \sqrt{\frac{2}{a}}\sin\left(\frac{n\pi x}{a}\right)$ $\quad E_n = \frac{n^2h^2}{8ma^2}$

$E_{n_x,n_y} = \frac{h^2}{8m}\left(\frac{n_x^2}{a^2} + \frac{n_y^2}{b^2}\right)$ $\quad E_{n_x,n_y,n_z} = \frac{h^2}{8m}\left(\frac{n_x^2}{a^2} + \frac{n_y^2}{b^2} + \frac{n_z^2}{c^2}\right)$ $\quad E_n = -\frac{Z^2e^2}{8\pi\varepsilon_0 n^2 a_0}$

$L^2 = l(l+1)\hbar^2$ $\quad L_z = m_l\hbar$ $\ m_l = -l,-l+1,\ldots l-1,l$ $\quad \nu_0 = \frac{1}{2\pi}\sqrt{\frac{k}{\mu}}$

$\mu = \frac{m_1m_2}{m_1+m_2}$ $\quad E_n = h\nu_0\left(n+\frac{1}{2}\right)$

$I = \mu r^2$

$B = \frac{h}{8\pi^2 I}$ $\quad \nu = 2(J+1)B$

$E_J = \frac{\hbar^2}{2I}J(J+1)$ $\quad I = I_0e^{-bl}$ $\quad A = \log\frac{I_0}{I}$

$T = \frac{I}{I_0}$ $\quad A = \varepsilon cl$

h = 6.626×10^{-34} Js
c = 2.9979×10^{8} ms^{-1}
ε_o = 8.854×10^{-12} C^2 N^{-1} m^{-2}
e = 1.602×10^{-19} C
m_e = 9.109×10^{-31} kg
a_0 = 0.05292 nm
k_B = 1.381×10^{-23} J K^{-1}

1 W = 1 J s^{-1}
1 eV = 1.602×10^{-19} J
1 nm = 10^{-9} m, 1 Å = 10^{-10} m, 1 pm = 10^{-12} m
1 amu = 1.661×10^{-27} kg

$\hbar = 1.05457 \times 10^{-34} J \cdot s$ $\quad R_H = 1.0968 \times 10^7 1/m$