PHYS212- FORMULA SHEET – MAJOR 1 Term122

$$\frac{e}{m} = \frac{V\theta}{B^2 ld}$$

$$m_e vr = n\hbar$$

$$r_n = \frac{n^2 a_0}{7}$$

$$E_n = -\frac{13.6Z^2}{n^2}$$

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 $\Delta n = \frac{k^2 Z^2 e^4 N n A}{4R^2 K \sin^4(\frac{\varphi}{2})}$

$$E = nhf$$

Constants:

$$e = 1.6 \times 10^{-19} C$$

$$m_{_{o}} = 9.1 \times 10^{-31} \text{ kg}$$

$$e = 1.6 \times 10^{-19} C$$
 $m_e = 9.1 \times 10^{-31} kg$ $\hbar = 1.05 \times 10^{-34} J \cdot s$

$$m_p = 1.67 \times 10^{-27} \text{ kg}$$
 $m_e = 3.1 \times 10^{-8} \text{ m/s}$ $m = 1.66 \times 10^{-27} \text{ kg}$ $m_p = 1.67 \times 10^{-27} \text{ kg}$ $m_p = 1.66 \times 10^{-27} \text{ kg}$

$$c = 3 \times 10^8 \ m / s$$

$$1u = 1.66 \times 10^{-27} \text{ kg}$$

$$k_B = 1.38 \times 10^{-23} \, J / K$$
 $k = 9 \times 10^9 \, N \cdot m^2 C^2$ $m_e c^2 = 0.511 \, MeV$

$$k = 9 \times 10^9 \ N \cdot m^2 C$$

$$m_e c^2 = 0.511 \text{ MeV}$$

$$m_p c^2 = 938 \; MeV \qquad hc = 12400 \; eV \cdot A \qquad \lambda_c = 0.00243 \; nm$$

$$hc=12400 \ eV \cdot A$$

$$\lambda_c = 0.00243 \text{ nm}$$

$$\sigma = 5.67 \times 10^{-8} \text{ W.m}^{-2} \text{ K}^{-4} \quad R = 1.0973 \times 10^{7} \text{ m}^{-1} \quad a_o = 0.053 \text{ nm}$$

$$R = 1.0973 \times 10^7 \, m^{-1}$$

$$a_{o} = 0.053nm$$