PHYS 220 - GENERAL PHYSICS II KNOW SHEET

1. Make sure that you indeed know <u>everything</u> from the ***General Physics I Knowsheet***!!

2. $(1+x)^n = 1 + n\,x + \frac{n\,(n-1)}{2!}\,x^2 + \cdots, \quad -1 < x < +1.$ [Binomial Expansion]

<u>Physical Constants:</u> [Memorize as we encounter these in class.]

$\frac{1}{4\pi\varepsilon_o} = 9 \times 10^9\ Nm^2/C^2$ $\qquad h = 6.63 \times 10^{-34}\ Js$

$e = 1.6 \times 10^{-19}\ C$ $\qquad m_e = 9.1 \times 10^{-31}\ kg$ $\qquad c = 3 \times 10^8\ m/s$

$R = 8.31\ J/mol\ K$ $\qquad N_A = 6.02 \times 10^{23}\ mol^{-1}$ $\qquad \mu_o = 4\,\pi \times 10^{-7}\ T\,m/A$

<u>Physical Formulae:</u> [Memorize as we encounter these in class.]

$p\,V = n\,R\,T$ $\qquad \Delta E_{th} = Q + W$ $\qquad \vec{F} = q\vec{E} + q\vec{v}\times\vec{B}$ $\qquad E = h\,f$

$\oint \vec{E}\cdot d\vec{A} = \frac{q_{encl}}{\varepsilon_o}$ $\qquad \oint \vec{B}\cdot d\vec{A} = 0$ $\qquad \vec{F}_{coul} = \frac{1}{4\pi\varepsilon_o}\frac{q\,Q}{r^2}\,\hat{r}$

$\oint \vec{E}\cdot d\vec{s} = -\frac{d\Phi_B}{dt}$ $\qquad \oint \vec{B}\cdot d\vec{s} = \mu_o\varepsilon_o\frac{d\Phi_E}{dt} + \mu_o i_{encl}$ $\qquad i = \frac{dq}{dt}$

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