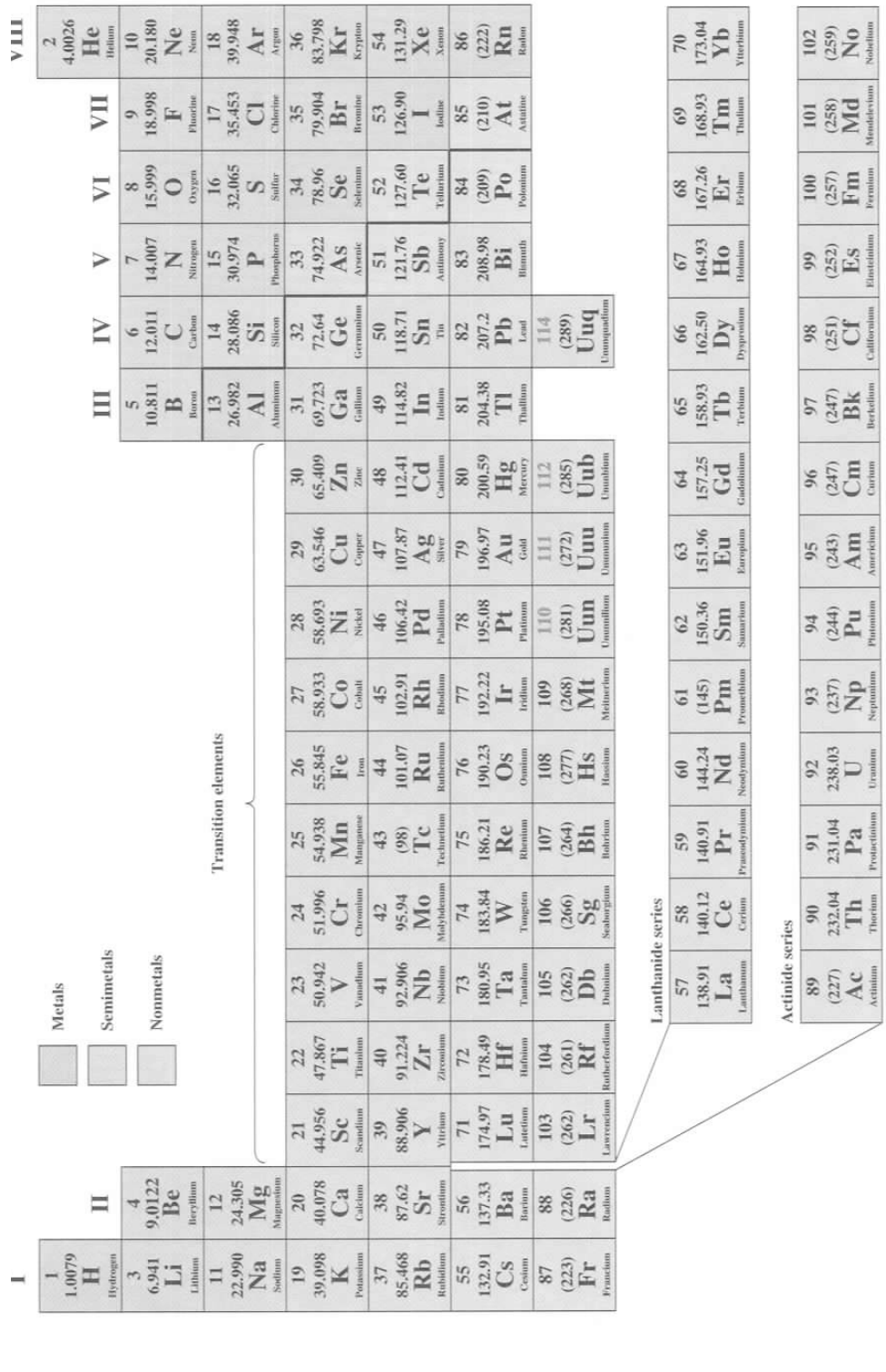
Periodic Table with constants and equations for Exam 1:



$c = 2.9979 \times 10^{8}$ m/s

$h = 6.6261 \times 10^{-34}$ J s

$N_A = 6.022 \times 10^{23}$ mol^{-1}

$m_e = 9.1094 \times 10^{-31}$ kg

$a_o = 5.292 \times 10^{-11}$ m

1 amu = 1.66×10^{-27} kg

$R_H = 2.1799 \times 10^{-18}$ J

$\Re = R_H/h = 3.2898 \times 10^{15}$ Hz

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

$$E_{nl} = -\frac{Z_{eff}{}^2 R_H}{n^2}$$

$1W = 1\ J\ s^{-1}$

$1\ J = 1\ kgm^2s^{-2}$

$1\ eV = 1.6022 \times 10^{-19}$ J

$E = h\nu = hc/\lambda$

$c = \nu\lambda$

$KE = (\frac{1}{2})mv^2$

$p = mv$

$$\lambda = \frac{h}{p}$$

for s wavefunction:

$RPD = 4\pi r^2 \Psi^2 dr$

for $n_f < n_i$……

$$v = \frac{Z^2 R_H}{h}\left(\frac{1}{n_f^2} - \frac{1}{n_i^2}\right)$$

for $n_f > n_i$…..

$$v = \frac{Z^2 R_H}{h}\left(\frac{1}{n_i^2} - \frac{1}{n_f^2}\right)$$

5.111 Principles of Chemical Science

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