P #19

Ch 27 - pg 861

$\lambda_1 = 1.0 \times 10^{-8}\ m$

$\lambda_2 = 1.0 \times 10^{-13}\ m$

$$E_1 = \frac{h \cdot c}{\lambda_1} = \frac{(4.14 \times 10^{-15}\ eV \cdot s)(3 \times 10^{8}\ m/s)}{(1.0 \times 10^{-8}\ m)}$$

$E_1 = 120\ eV$

So

$V_1 = 120\ V$

$$E_2 = \frac{h \cdot c}{\lambda_2} = \frac{(4.14 \times 10^{-15}\ eV \cdot s)(3 \times 10^{8}\ m/s)}{(1.0 \times 10^{-13}\ m)}$$

$E_2 = 1.2 \times 10^{7}\ eV$

So

$V_2 = 1.2 \times 10^{7}\ V$