Glazer & Wark.

2.4. $\frac{\#\ \text{excited}}{\#\ \text{GND}} = \frac{A\exp\left(-\frac{\varepsilon_E}{k_B T}\right)}{A\exp\left(-\frac{\varepsilon_G}{k_B T}\right)}$

$$= \exp\left(-\frac{\varepsilon_E + \varepsilon_G}{k_B T}\right)$$

$$= \exp\left(-\frac{\Delta E}{k_B T}\right)$$

$k_B T \approx 1.38\times10^{-23} T\ \text{J K}^{-1}$

Taking $\Delta E = 1\text{eV} \triangleq 1.6\times10^{-19}\ \text{J}$,

$$\frac{\Delta E}{k_B T} \approx \frac{1.6\times10^{-19}\ \text{J}}{1.38\times10^{-23} T\ \text{J}}$$

$$\approx \frac{1.16\times10^{4}}{T}$$

Taking $T = 300$, $\frac{1.16\times10^{4}}{3\times10^{2}} = \frac{1.16\times10^{2}}{3\times10^{2}} \approx 39.$

$$\Rightarrow \boxed{\frac{\#\ \text{excited}}{\#\ \text{GND}} \approx \exp(-39).}$$