Q1. Consider a Si diode with $N_D = 10^{17}\ cm^{-3}$ and $N_A = 2 \times 10^{17}\ cm^{-3}$. Consider the length of p and n-regions to be 5 μm. Solve for the equilibrium energy band diagram. Plot electron and hole density across the diode. Compare your results with that of analytical results.