

Semiconductor questions:

1.
 - a. To become ionized the electron must leave the bound states of the atom. $E=0$ and above are free states so 4eV is needed.
 - b. The energy gap is $1.0\text{eV}=k_{\text{B}}T$ so $T=12000\text{K}$.
2. The energy goes into a 0.7eV photon (infrared)
3. You would expect light to come out, $\lambda=539\text{nm}$, so green light.
4. The positive ions are stuck to the lattice.