1. (10 points) Construct a bijection from $[n] \times \{0, 1\}$ to $[2n]$, where $n$ is some positive integer.
2. (10 points) Show that there is a bijection from \( \{(A, B) : A, B \in 2^{[n]} \text{ and } A \cap B = \emptyset\} \) to \( \{0, 1, 2\}^n \), where \( n \) is some positive integer.