1. VPP and BPP  Recall that a problem $Q_V$ is in VPP if there is a randomized algorithm $A_V$ that (V1) on a yes-instance of $Q_V$, returns “yes” with probability $\delta$, and (V2) on a no-instance of $Q_V$, returns “no” with probability 1 (where $\delta > 0$ is a fixed constant); and that a problem $Q_B$ is in BPP if there is a randomized algorithm $A_B$ that (B1) on a yes-instance of $Q_B$, returns “yes” with probability $2/3$, and (B2) on a no-instance of $Q_B$, returns “no” with probability $2/3$.

Give a formal proof that $\text{VPP} \subseteq \text{BPP}$.

2. We have described a proof that $\text{NP} \subseteq \text{PP}$ in class. Write a formal and detailed proof for this result.