(1) Compute the reliability of an NMR system under the following conditions. Processors fail with probability $p$, and the (single) voter fails with probability $\sqrt{N}v$. All failures are permanent. For $p = 10^{-4}$ and $v = 10^{-5}$, plot the reliability of the system as a function of $N$, for $N$ varying from 3 to 27, in steps of 2.

(2) What is the reliability of the following structure? The probability of a processor failure is $p$ and that of a voter failure is $v$.

(3) You are told that the lifetime of a given processor model is uniformly distributed between 5,000 and 6,000 hours. You have an instance of such a processor, which is 5,500 hours old and still functional. What is the probability that this processor will fail over the next 100 hours of operation?