Exercise No. 4

**Peer-To-Peer Networks**

Winter 2015

**Exercise 1  Chernoff**

Having $m$ data blocks, we pass them through a hash function, resulting in $2m$ data blocks. Afterwards, they are distributed randomly among $n$ peers ($n \gg m$) with a probability of failure $p$.

- What is the expected number of failed blocks?
- The data can be recovered if we have at least $m$ data blocks. What is the probability that we can recover the data after it has been distributed?