EE 720: Introduction to Number Theory and Cryptography (Spring 2018)
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Assignment 2: 10 points Date: January 23, 2018

Find the pdf file corresponding to your roll number in the directory `https://www.ee.iitb.ac.in/~sarva/courses/EE720/2018/assignments/assignment2/`. Upload the answers as a **pdf** file in Moodle. Use the tex file provided in the directory to fill in your answers. The **upload deadline** will be 11:00pm IST on Wednesday, January 31, 2018.

1. [5 points] Let $\texttt{negl}_1$ be a negligible function. Prove that for any positive polynomial p, the function $\texttt{negl}_2$ defined by $\texttt{negl}_2(n) = p(n) \cdot \texttt{negl}_1(n)$ is negligible.

   Solution: Write your answer here

2. [5 points] Consider a variant of the one-time pad with message space $=\{0,1\}^l$ and keyspace $\mathcal{K}$ restricted to all l-bit strings with an even number of 1's. Is this scheme perfectly secret? Justify your answer either with a proof or a counterexample.

   Solution: Write your answer here