Assignment 1

This assignment consists of two parts. Please complete both parts.

Part A: Number Theory

1. Find the greatest common divisor (GCD) of 35 and 42.

2. Find the least common multiple (LCM) of 12 and 18.

3. Prove that if a and b are integers, then a divides b if and only if a times the quotient of b divided by a equals b.

Part B: Cryptography

4. What is a symmetric key algorithm? Give an example of a symmetric key algorithm and explain how it works.

5. What is a public key algorithm? Give an example of a public key algorithm and explain how it works.

6. Explain the difference between symmetric key algorithms and public key algorithms. Why are these differences important in practical applications?

Due on [Date]