CSCI-C231 Introduction to Math of Cybersecurity

Lab 1: Affine Cipher

Due: Jan 30 **Name:** _____

I pledge on my honor that the code and answers are independently developed on my own.

Sign:_____

1. Write a program to implement an affine cipher that is able to properly handle an extended alphabet with all upper case English letters, digits, and six punctuation signs including "," (comma), "." (period), " " (whitespace), ";", ":", "!". Make sure that the ciphertext and plaintext are defined over the same alphabet. Answer the following questions before writing the code.
   (a) What would be the size of your alphabet?
   (b) How would you *encode* and *encrypt* the text?
   (c) How would you *decode* and *decrypt* the text?
   (d) What if you encounter some letter (like "c" or "â") that is not in the alphabet?
   (e) How would you pick the encryption key?