

Name _____

University of Baltimore

Math 321: Discrete Structures

Date _____

Chapter 2 (D): Algorithms, Integers, Encryption

BECAUSE THIS IS A GRADED ASSIGNMENT, YOU MAY NEITHER GIVE NOR RECEIVE HELP. Answer each question as indicated. **Think** first, then write. **Show all your work** (use the back if needed), and remember to **check** your answers! Place your answers in the spaces provided at the right.

1. Describe an algorithm that takes as input a list of n integers and finds the number of integers less than 5 in the list.

2. For the number 757, find the binary expansion and the hexadecimal expansion.

3. Use the shifting function $f(p) = (5p - 1) \bmod 26$ to encrypt the message "aunt".

4-5. Use RSA encryption with $p = 37$, $q = 53$, and $e = 13$ to encrypt the message "aunt".