Instructions:

- Please write clearly. What I cannot read, I will not grade.

- Show all your work in detail. I give partial credit.

- This exam has 7 pages including the title page. Please check to make sure all pages are included.

- This exam is closed book, closed notes, no calculators.

- Don't get bogged down on any one question. You will have 50 minutes to complete this exam.

I commit to uphold the ideals of honor and integrity by refusing to betray the trust bestowed upon me as a member of the Georgia Tech community.

Signature: _____

Question	Points	Score
1. Vocabulary	15	
2. Multiple Choice	5	
3. Types of Reading	6	
4. DooWaa	6	
5. Mystery Code	3	
6. trainCrash	5	
7. Breakup	7	
8. Stick Together	9	
Total:	56	

1. For each of the following vocabulary terms, write a concise 1-2 sentence definition. Be brief, and to the point.

    (a) (3 points) dictionary

    (b) (3 points) slice

    (c) (3 points) traverse

    (d) (3 points) mutable type

    (e) (3 points) decrement

Multiple Choice

2. For each of the following questions, select the appropriate answer by circling it.

    (a) (1 point) Order the following items from earliest (older) to latest (newer):
        1. Konrad Zuse's Z1 computer
        2. The Transistor
        3. ARPANET
        A. 1,2,3   B. 2,3,1   C. 1,3,2   D. 2,1,3   E. None of these.

    (b) (1 point) Order the following items from earliest (older) to latest (newer):
        1. The Jacquard Loom
        2. Ada Lovelace's program for the Analytical Engine
        3. Jacques De Vaucanson's Digesting Duck
        A. 1,2,3   B. 3,1,2   C. 2,3,1   D. 2,1,3   E. None of these.

    (c) (1 point) Which of these would you use to print a number to four decimal places?
        A. "%4i"   B. "0%.4i"   C. "%4f"   D. "%.4f"   E. "%0.5f"

    (d) (1 point) Convert 11011001_2 to decimal (base 10):
        A. 217   B. 225   C. 232   D. 233   E. 234

    (e) (1 point) Which data type is mutable?
        A. int   B. float   C. str   D. list   E. tuple

Short Answer

3. Three functions for reading from a file are read(), readline(), and readlines(). Briefly explain what each of these functions returns when called. Be sure to explain how each function differs in behavior.

   (a) (2 points) read() -

   (b) (2 points) readline() -

   (c) (2 points) readlines() -

Code Understanding

4. (6 points) Fill in the blanks so that, when run, the code below will output the followng:

```
>>> func1()
DooWaa
Diddy
Diddy
Dum
Diddy
Doo


def func1():
    print "DooWaa"
    for i in range(  _____ ):

        print _____

        if i == _____ :
            print "Dum"
    print "Doo"
```

5. (3 points)
```
def mysteryFunc(x,y):      # x and y are non-negative integers
    if y == 0:
        return 0
    else:
        return x + mysteryFunc(x,y-1)
```
What does this mystery function do? Also tell us the value returned as a result of calling

```
mysteryFunc(5,2)
```

6. Examine the following code:

```
def trainCrash (x):
    while x <= 10:
        if x % 5 == 0:
            return "oh no, Crash!"
        if x % 3 == 0:
            print "I'm a train..."
        x = x +1
        print "Choo-choo!"
    return "I'm too tired to go on"
```

If this code is called from the IDLE window as follows:

```
y = trainCrash(8)
```

(a) (3 points) What is displayed on the screen?

(b) (2 points) What will be stored in the y variable from the example function call above?

Code Writing Questions

7. (7 points) Breakup - Write a function called `breakUp` that accepts a string as a parameter. It should return a list which is made up of single character strings, one per letter in the original string.

   For example:

   ```
   >>> result = breakUp( "Yey excellence fees!" )
   >>> print result
    ['Y','e','y',' ', 'e','x','c','e','l','l','e','n','c','e',' ','f','e','e','s','!']
   ```

8. (9 points) Stick Together - Write a function called `stickTogether` that accepts a list as a parameter. It should return a string that is the concatenation of all string elements in the list. Note that non-string elements should be skipped, including nested lists.

For example:

```
>>> result = stickTogether( [ 4, "Hello", ["bob",3], " ", True, "There!", 7]  )
>>> print result
 "Hello There!"
```