

Name : _____

1. (2 points)

Grading TA: _____

- **INTEGRITY:** By taking this exam, you pledge that this is your work and you have neither given nor received inappropriate help during the taking of this exam in compliance with the Academic Honor Code of Georgia Tech. Do NOT sign nor take this exam if you do not agree with the honor code.
- **DEVICES:** If your cell phone, pager, PDA, beeper, iPod, or similar item goes off during the exam, you will lose 10 points on this exam. Turn all such devices off and put them away now. You cannot have them on your desk.
- **ACADEMIC MISCONDUCT:** Academic misconduct will not be tolerated. You are to uphold the honor and integrity bestowed upon you by the Georgia Institute of Technology.
 - Keep your eyes on your own paper.
 - Do your best to prevent anyone else from seeing your work.
 - Do NOT communicate with anyone other than a proctor for ANY reason in ANY language in ANY manner.
 - Do NOT share ANYTHING during the exam. (This includes no sharing of pencils, paper, erasers).
 - Follow directions given by the proctor(s).
 - Stop all writing when told to stop. Failure to stop writing on this exam when told to do so is academic misconduct.
 - Do not use notes, books, calculators, etc during the exam.
- **TIME:** Don't get bogged down by any one question. If you get stuck, move on to the next problem and come back once you have completed all of the other problems. This exam has 7 questions on 10 pages including the title page. Please check to make sure all pages are included. 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. I have also read and understand the requirements outlined above.

Signature: _____

Question	Points	Score
1. Grading TA Name	2	
2. Vocabulary	9	
3. Multiple Choice	17	
4. Renegade	4	
5. myText	4	
6. addElements	8	
7. Dictionary File	12	
Total:	56	

2. (9 points)

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

(a) [3 pts] modulus operator

Solution: An operator, denoted with a percent sign (%), that works on integers and yields the remainder when one number is divided by another.

(b) [3 pts] parameter

Solution: parameter - A name used inside a function to refer to the value passed as an argument.

(c) [3 pts] keyword

Solution: A reserved word that is used by the compiler to parse program; you cannot use keywords (such as if, def, and while) as variable names.

3. (17 points)

For each of the following multiple choice questions, indicate the best answer by circling it.

(a) [1 pt] Which variable name(s) below is/are invalid in Python?

- A. 1st_num
- B. num_1st
- C. num-1st
- D. firstNum
- E. A, B, and C

F. A and C

G. A,B,C and D

- (b) [1 pt] Which of the following data types is/are immutable?
A. Lists **B. Tuples** C. Dictionaries D. All of the above E. None of the above
- (c) [1 pt] What happens when the following code is ran?

```
x = 20
if x < 17:
    print("It's less than 17!")
elif x = 17:
    print("It's equal!")
else:
    print("It's greater than 17!")
```


A. prints: It's less than 17!
B. prints: It's equal!
C. prints: It's greater than 17!
D. Nothing is printed
E. A syntax error is generated
- (d) [1 pt] What is printed by the following lines of code?

```
myWords = ["What", "Is", "Your", "Name"]
newWords = myWords[0] + myWords[-1]
print(newWords)
```


A. ['What', 'Your']
B. ['What', 'Name']
C. WhatName
D. 'WhatName'
E. WhatYour
F. 'WhatYour'
G. IndexError: list index out of range
- (e) [1 pt] Which of the following code fragments correctly prints the sentence contained in the list below WITHOUT commas or brackets on a single line?

```
aList = ['GO', "Yellowjackets", '!']
```


A. `print(str(aList))`
B. `aStr = ""`
`for word in aList:`
 `aStr = aStr + word`
`print(aStr)`
C. `for word in aList:`
 `print(word)`
D. `print(aList[:])`

- (f) [1 pt] Given the following code, what is the data type of the value stored in the “myAns” variable?
- ```
def factorial(myInt):
 fact=1
 for i in range(myInt):
 fact = fact * (i+1)
 print(fact)

myAns = factorial(4)
```
- A. Generator   B. Range   C. Bool   D. Int   E. Float   **F. NoneType**
- (g) [1 pt] Grace Hopper was:   A. A Rear Admiral.   B. Awarded the ”man-of-the-year” award from DPMA in 1969.   C. Instrumental in the development of COBOL.   D. Credited for developing the first compiler.   **E. All of these.**
- (h) [1 pt] In 1964, Douglas Engelbart demonstrated the worlds first:   A. Transistorized Computer   **B. Mouse**   C. Tape Drive   D. Vacuum Tube   E. Solid Sate Memory
- (i) [1 pt] 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.
- (j) [1 pt] 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.
- (k) [1 pt] Which of the following is **not** a reason you might want to use both CSS and HTML rather than only HTML when building a website.
- A. CSS and HTML help reduce duplication/clutter in your pages given that one stylesheet can be applied to many webpages.
  - B. CSS and HTML allow you to separate content from presentation.
  - C. CSS and HTML allow you to open a connection to a database and dynamically alter the content of a website.**
  - D. CSS and HTML make a website more flexible in spacing and appearance.
  - E. CSS and HTML can assist in unifying the theme and appearance of a website easily.

- (l) [1 pt] Values stored in dictionaries can be which of the following?
- A. Any data type**
  - B. Mutable data types
  - C. Immutable data types
  - D. Strings, ints and lists only
  - E. None of the above
- (m) [1 pt] Opening a file in write mode creates the file if it doesn't exist.
- A. True** B. False
- (n) [1 pt] What is the correct syntax for adding a number (1) to a tuple?
- A. myTuple = myTuple + (1,)**
  - B. myTuple.append(1)
  - C. myTuple.insert(0,1)
  - D. myTuple = myTuple + 1
- (o) [1 pt] (3) is an example of a tuple.
- A. True **B. False**
- (p) [1 pt] A list can have a list as an element.
- A. True** B. False
- (q) [1 pt] Examine the following code segments. Which of them will successfully convert "CS 9876" into "CS 1301"?
- ```
orig = "CS 9876"
```
- A. `new = orig[0:2] + "1301"`
 - B. `new = orig[0:3] + "1301"`
 - C. `new = orig.replace("9876", "1301")`
 - D. A and B
 - E. A and C
 - F. B and C**

4. (4 points)

Read the following short piece of code carefully, and write down exactly what would be printed when it was executed:

```
def whatDoesThisDo( a ):
    print( a * 3 )
    print( a[::-1] )
    print( a[:3] )
    print( a[:3] )

whatDoesThisDo("renegade")
```

Solution:

```
renegaderenegaderenegade
edagener
ren
red
```

+1 point for each correct line.

5. (4 points)

Examine the following code that writes to several files. After all of the code is executed, what is the contents of the myText.txt file?

```
f = open('myText.txt', 'w')
f.write('1')
f.write('\n')
f.close()
f = open('myText.txt', 'a')
f.write('2')
f.write('\n')
f.close()
f = open('myText.txt', 'w')
f.write('3')
f.write('\n')
f.close()
f = open('notmyText.txt', 'a')
f.write('4')
f.write('\n')
f.close()
f = open('myText.txt', 'a')
f.write('5')
f.write('\n')
f.close()
```

Write the exact contents of the myText.txt file below. If a line ends with a newline, indicate that by beginning the next line below it.

Solution:

```
3
5
```

Grading: +2 points for each correct number.
-1 point for each additional number, or extra spaces.
-0.5 for multiple numbers on the same line.
-0.5 for any quotes or python prompts (>>>).
-1 for writing newlines.

6. (8 points)

Write a function named `addElement` that takes in two lists of numbers as parameters. You may assume the two lists are of the same length, and that they only contain numbers (ints and floats).

Your function should add the corresponding elements of each list together and return the result in a new list. For example:

```
result = addElements( [1,5,0], [8,3,3] )
print( result)
```

would result in: [9, 8, 3]

Solution:

```
def addElements( list1, list2 ):
    newList = []
    for i in range( len( list1 ) ):
        newNum = list1[i] + list2[i]
        newList.append(newNum)
    return newList
```

Grading: 2 points for a correct header.

2 points for indexing through both lists in such a way as to get corresponding elements.

2 points for adding correct elements and storing them.

1 point for returning a list, 1 point if its contents are correct.

The bottom of this page intentionally left blank. You may use it for scratch paper. If you place an answer below, box it, indicate which problem it is for by number, and BE SURE TO WRITE “Answer on page 7” at the problem location!

7. (12 points)

Write a function named `dictionaryFile` that accepts two parameters. The first parameter will be a dictionary, and the second parameter will be a string representing a file name.

Your function should open the named file for writing, and write out each key/value pair in the dictionary to the file, one per line. Write the key first, then place a tab character after it, and then write the value.

For example, if the following code was executed:

```
myDict = {1:"Hi there", "test": [1,2,3,4], 48.8: None }
dictionaryFile( myDict, "output.txt")
```

The contents of the `output.txt` file could look like this:

```
1      Hi there
test   [1,2,3,4]
48.8   None
```

Solution:

```
def dictionaryFile( inputDict, fileName):
    f = open(fileName, "w")
    for i in inputDict:
        f.write( str(i) )
        f.write("\t")
        f.write( str( inputDict[i] ) )
        f.write("\n")
    f.close()
```

Grading:

- 1 point for correct header,
- 2 points for opening file (in write mode)
- 2 points for iterating through the items/keys in dictionary
- 1 point for attempting to write the key correctly
- 1 point for converting key to string before writing.
- 1 point for writing a tab character
- 1 point for attempting to write the value correctly
- 1 point for converting value to a str before writing.
- 1 point for adding a newline after each line.
- 1 point for closing the file handle when done.