

Name : \_\_\_\_\_

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 9 questions on 8 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. Vocabulary	9	
2. Base Conversions	5	
3. Expressions	10	
4. Multiple Choice	5	
5. Range and Modulo	5	
6. If and For	3	
7. Movie Ifs	7	
8. CountUp	8	
9. Body Mass Index	9	
Total:	61	

## 1. (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] argument

(b) [3 pts] keyword

(c) [3 pts] local variable

## 2. (5 points)

For each of the following base conversion questions, give a brief answer:

(a) [1 pt] Convert the decimal number 8 into binary:

(b) [1 pt] Convert the decimal number 173 into binary:

(c) [1 pt] Convert the hexadecimal number 2B into decimal:

(d) [1 pt] Convert the binary number 110111 into decimal:

(e) [1 pt] Convert the decimal number 7 into hexadecimal:

## 3. (10 points)

Pretend you are the python interpreter. Evaluate each of the expressions below. Write down the value that they evaluate to, and the type of that value in the provided columns. If the expression is not valid python syntax, or will throw an exception, simply write "Error". The first line has been provided as an example.

Expression	Result	Type
<code>1 + 2 * 3</code>	7	int
<code>7 % 4</code>		
<code>"cat" + "dog" * 2</code>		
<code>len( range(4,10,2) )</code>		
<code>10 + 5 / 2</code>		
<code>2**(10//3)</code>		

## 4. (5 points)

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

(a) [1 pt] Given the following code, what is printed?

```
if type("True") == bool or type(5 // 4) == float:
    print ("Braves")
elif type(5) == int:
    print("Falcons")
else:
    print("Hawks")
```

- A. Braves
- B. Falcons
- C. Hawks
- D. A and B
- E. None of the above

(b) [1 pt] What is the value of newStr after the code below is executed?

```
aStr = "abc"
anum="3"
newStr = aStr * len(anum)
```

- A. 'abc3'
- B. 'abcabc'
- C. 'abc'
- D. 'abcabcabc'
- E. The code produces an error

(c) [2 pts] Assume the following code has been executed by the python interpreter:

```
z = 4//2/2
```

What is the TYPE of the value stored in z?

A. Integer B. Float C. String D. List E. NoneType

What is the VALUE stored in z?

A. 1 B. 1.0 C. '1' D. '1.0' E. 4 F. 4.0 G. '4' H. '4.0'

(d) [1 pt] What is the type of the data stored in X after this line of code is executed?

```
X = print("2.0")
```

A. String B. Int C. Float D. Bool E. NoneType

5. (5 points)

What does the following code PRINT when executed?

```
for n in range(1,10):
    if (n%3 == 0) or (n%5 == 0):
        print("oak")
    elif (n%4 == 0):
        print("elm")
    if (n==5):
        print("birch")
```

6. (3 points)

Execute the following piece of code as if you were the python interpreter. Next to the code, write down exactly what would be printed.

```
p="ting"
if 12%4==0:
    print ("hi")
    p="test"
elif p in "testing":
    p="ohayo!"
    print (p)
if p.find("t") == 4:
    p=[1,2,0]
    for i in p:
        print (p[i])
elif 'es' in p:
    for i in p[::-1] :
        print(i)
else:
    print("bye!")
```

## 7. (7 points)

Given the following functions, write what they print to the screen when they are executed. If the function produces an error, write ERROR and draw an arrow to the line that caused the error.

- (a) 

```
def fastFurious(movieNum):
    if movieNum > 8:
        print("Not yet made")
    return None
    print("Fast Cars!")
fastFurious(9)
```
- (b) 

```
def speed2(a,b,c):
    if b>c:
        if c>0:
            print("Yes!")
        elif b>0:
            b=c-b
        elif a<0:
            print("Uhm")
        if b!=c:
            print (b)
        else:
            print("No.")
    else:
        print("Finish!")
speed(-1,8,3)
```
- (c) 

```
def counterStrike(b):
    if b==0:
        return 17
    else:
        print(b-1)
        return counterStrike(b-1)
print( counterStrike(5) )
```

8. (8 points)

Write a function called **countUp** that accepts two integer parameters. The function will print out all integers between the two parameters (excluding both parameters!) in ascending order *using a while loop*. You may assume that the two parameters are valid integers, and that the first parameter will always be smaller than the second parameter. Note that you **may not use a for loop** in your solution!

**Example test case:**

```
>>>countUp(1,5)
2
3
4
>>>
```

9. (9 points)

Write a function named `bodyMassIndex`. Prompt the user to enter their weight in kilograms and height in meters. Make sure to use a descriptive prompt for each value. You may assume that the user will enter valid floating point numbers (e.g. 44.8). Your function should calculate the Body Mass Index of that person using the following formula:  
 $BMI = Weight/Height^2$

Then print the result. The result should be formatted to one significant digit after the decimal point. For example, your function should print something like: “Your BMI is 18.5”.

**Example run:**

```
>>> bodyMassIndex()
Please enter your weight in kg: 79.3
Please enter your height in meters: 1.82
Your BMI is 23.9
>>>
```

This page intentionally left blank. You may use it for scratch paper. If you place an answer on this page, box it, indicate which problem it is for by number, and BE SURE TO WRITE "Answer on last page" at the problem location!