

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 7 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	3	
2. Read Functionals	5	
3. Dictionaries & Tuples	10	
4. Picture Drawing	10	
5. ColorBlind	10	
6. BigNumbersOnly	12	
7. Draw Border	14	
Total:	64	

1. (3 points)

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

(a) [3 pts] slice

2. (5 points)

Examine the following code and pretend you are the python interpreter.

```
myList = range(2,21,3)
res1 = map(lambda x:x+5, myList)
res2 = filter(lambda x:x%2==0 or x%5==0, res1)
res3 = reduce(lambda x,y: x+y, res2)
```

After this code has executed, write what the following variables point to:

myList : _____
res1 : _____
res2 : _____
res3 : _____

3. (10 points)

Read the following pieces of code. Determine whether they will be executed successfully or not. If yes, show the result that would be printed. If not, explain why not.

(a) [2 pts]

```
myTuple1 = (1,2,3)
myTuple1.append(4)
print myTuple1
```

(b) [2 pts]

```
myTuple2 = (1,2,3)
myTuple3 = (4)
print myTuple2+myTuple3
```

(c) [2 pts]

```
myList=[0,3,4,1]
myList.remove(3)
print myList
```

(d) [2 pts]

```
myDictionary1={ a:1, b:2, c:3}
myDictionary1[d]=4
print myDictionary1
```

(e) [2 pts]

```
myDictionary2={ 10 : 1, 20 : 2, 30 : 3}
print myDictionary2[1]
```

4. (10 points)

Examine the following code. Draw a sketch of exactly what would be shown on-screen if the `draw` function were called.

```
from myro import *

def draw():
    pic = makePicture(100, 100)
    for x in range(100):
        for y in range(0, 100):
            pix = getPixel(pic, x, y)
            if x == y:
                setRed(pix, 0)
                setGreen(pix, 0)
                setBlue(pix, 0)
            if x > 80 and y < 20:
                setRed(pix, 0)
                setGreen(pix, 0)
                setBlue(pix, 0)
    show(pic)
```

5. (10 points)

Write a function named `colorBlind` that accepts a picture as a parameter. (A picture object, not a string or file location). Your function should copy the picture and modify the copy as follows: Switch the red and green values of each pixel. For example, if a pixel initially had RGB values (255,30,72), your function should change them to (30,255,72). Return the modified picture.

6. (12 points)

Write a function named `bigNumbersOnly` that accepts the name of a file to open as a string parameter. The function should open the file, which will be formatted as follows (one number per line):

```
54
4.0
23.3
765.2
54
876.8
34
238
45
50
```

Your function must read in the file and return a *list* of all the numbers greater than 50 (numbers should be stored as floats). Remember to close your file after you are finished reading it. If you find duplicate numbers greater than 50, DO NOT include duplicates in the list!

7. (14 points)

Write a function called `border` that accepts a single picture as a parameter. Your function should return a copy of the picture with a five-pixel-wide black border drawn over the outside of the picture. (The returned picture size will be the same as the original picture, but the outside five pixels on all four sides will be changed to be black.) The original picture should not be modified. This function must work on pictures of any arbitrary size. (You may assume it is larger than 10x10 pixels.)

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