

15-112 Spring 2020 Quiz 6

Up to 24 minutes. No calculators, no notes, no books, no computers. Show your work!

1. **Code Tracing:** Indicate what the following programs print. Place your answers (and nothing else) in the boxes next to the code.

(a) (2 points) CT1

```
d = {1:"one", "v":"quiz4"}
a = range(3)
for i in a:
    print (d.get(i,"q"))
```

(b) (2 points) CT2

```
def ct2(s):
    d = {}
    for i in range(len(s)):
        d[s[i]] = i
    for c in d:
        print (d[c])
    for c in s:
        d[c] = d[c] + 1
    for c in d:
        print (d[c])
    return s
ct2("borrow")
```

(c) (2 points) CT3

Assume that the following figure is the first row of an image represented by `pic` with each box showing one pixel – each pixel is either black or has 100% (255) of only one color component:



```
def quiz(pic):
    found = False
    x = 0
    while not found:
        if ImageWriter.getColor(pic,x,0) == [0,0,0]:
            found = True
        x = x + 1
    return ImageWriter.getColor(pic,x,0)

print(quiz(pic))
```

2. (4 points) **Free Response:** Image Processing

Let's say you have an image that is vertically divided into two sides. Each side is a different color and size. There is nothing else in the image.

Write the function `findWiderSide(pic)` that takes an already loaded picture as input parameter, and determines which side (left or right) is wider in the given picture. The function should process the image and if the block on the left is wider, the function should return `"left"` and if right side is wider, the function should return `"right"`. If the two sides are same, the function should return `"same"`. Here are two examples:



Figure 1: Should return "left" since the left side is wider



Figure 2: Should return "right" since the right side is wider

```
def findWiderSide(pic):  
    w = getWidth(pic)  
    h = getHeight(pic)  
    # Your code goes here
```