

CS 1301 Study Questions

These are sample test problems. (Most actual test problems will be just a bit easier). To learn the most, solve these problems using only a pencil or pen and a piece of blank paper. Once you think you have them solved, move to a computer and see if you were right. If not, learn from your mistakes!

Write Code (8 points)

Write a function **showPic()** which prompts the user to pick a picture using the *pickAFile()* file chooser, and then displays it. If the user picks a file that does not end in “.jpg” or “.jpeg” the showPic() function should keep prompting the user to pick a file until they pick a valid jpeg image. Remember, in myro the *pickAFile()* function returns a filename as a string, the *loadPicture(filename)* function loads a picture, and the *show(p)* function displays a picture.

Write Code (15 points)

Write a function **isPalindrome(aString)** that takes a string as a parameter and returns a boolean value. The function should return True if the string parameter is a palindrome (i.e. when read backwards, it is the same, like "racecar", or “AManAPlanACAnalPAnaMA”) and False otherwise.

Write Code (10 points)

Write your own version of the **getPixels(picture)** function. It will return a list containing all of the pixels in a picture. You may NOT use the built in getPixels function, but you can use the getWidth(picture), getHeight(picture), and getPixel(picture, x,y) functions.

Namespaces (8 points):

Review the following code:

```
aVariable = 8
myVariable = 15

def function1(i,q):
    global aVariable
    myVariable = 20

    print i + aVariable
    aVariable = i+q
    return q + myVariable
```

```
Answer = function1(aVariable, myVariable)
```

5a. After the function call (at the end of the code) what is the value of:

Answer = _____

aVariable = _____

5b. What is printed to the screen when this code runs? _____

5c. Which variable or variables are "overshadowed" when execution is inside of function1? _____

Write Code:

Write a function **removeStrings(aList)** that will take the aList parameter and return a copy with all elements that are of type 'str' removed using the filter(function,list) function. You may write a helper function, or use a lambda expression. For example, removeStrings(['test', 3, 4, 'hi']) would return [3,4].