

## 141 Recitation Week 5

1. What is wrong with the following code and how do you fix it? The desire is to create a username (string) by concatenating initials (string) and digits (int).

```
initials = "abc"  
digits = 1234  
username = initials + digits
```

2. Consider the following variables:

```
str1 = 'Star Wars'  
str2 = 'Rocks'  
z=4  
name = "Bobby Flay"
```

What are the values of the following expressions?

a.) `str1[1]`

b.) `str2[z]`

c.) `str1[-1]`

d.) `str2[5]`

e.) `str1['0']`

f.) `name[6:]`

g.) `name[:7]`

h.) `name[1:2]`

i.) `name[:]`

3. In the following loop, what are the type/s of the variables s and c?

```
s = "hello"
for c in s:
    print(c)
```

4. What does the following program produce for output? Use the substitution trace method to verify.

```
def isUpper (s):    # returns True if s is all uppercase
    if s == '':
        return True
    elif strHead(s) < 'A' or strHead(s) > 'Z': # head not uppercase?
        return False
    else:
        return isUpper(strTail(s))
```

a.) isUpper( "PYTHoN" )

b.) isUpper("ABC")

5. What does the following program produce for output? Use the substitution trace method to verify.

```
def swapEnds(str):
    if len(str) <= 1:
        return str
    else:
        return str[-1] + swapEnds(str[1:-1]) + str[0]

filename = input("Enter filename: ")
for line in open(filename):
    print(swapEnds(line.strip()))
```

Assume the user enters the filename, `pirate.txt`, which contains the following lines:

```
Ahoy
Pillage
```

6. The following question does not produce the same output with the code fragment below. Why is that? Assume that filename is 'pirate.txt'.

```
filename = input("Enter filename: ")
for line in filename:
    print(swapEnds(line.strip()))
```

7. Write a function that replaces all characters in a string with another character. The arguments to the function should be the string, the character to replace, and the character to replace it with.

For example:

```
>>> strReplace('a', 'z', 'x')
'a'
>>> strReplace('test', 't', 'x')
'xesx'
```

Also do a substitution trace for each example.