Output Tracing (20 points)

Write down the output of the following code snippets. If an error occurs, write down the output until the error occurs, then write "error".

#1

```
x = "ralphie"
y = "buffalo"
for i in range(0, len(x), 2):
       print(x[i])
       print(y[i + 1])
```

r
u
l
f
h
l
e
error

#3

```
a = 0
for i in range(4, 8):
    b = []
    for j in range(1, i):
        b.append(i // j >= 2)
    print(b)
    a += b.count(False)
print(a)
```

[True, True, False]
[True, True, False, False]
[True, True, True, False, False]
[True, True, True, False, False, False]
8

#4

```
# user enters "ZebRa" for following input
u = input("What is your favorite animal?")
low = u.lower()
up = u.upper()

s = ""
for c in u:
    if c in low:
        s = s + c
    else:
        s = c + s
print(s)
```

RZeba

#5

```
ls1 = ["broccoli", "kale", "spinach", "tomato"]
ls2 = ["apple", "orange", "grape", "tomato"]
v = 0
f = 0
for i in range(len(ls1)):
    if ls1[i] < ls2[i]:
        v += 1
        print(ls1[i])
    else:
        f += 1
        print(ls2[i])
print(v)
print(f)
```

apple
kale
grape
tomato
1
3

Function Usage (20 points)

For the following functions, indicate the possible types for each parameter, then write a function name and a description of what it does.

When choosing types for parameters, circle all possibilities that will not cause errors or infinite loops.

```
def func1(p1, p2):
    x = p1[:p2]
    y = p1[p2:]
    return y + x
```

P1: string float int boolean list of strings list of ints list of booleans list of any type

P2: string float int boolean list of strings list of ints list of booleans list of any type

What would you name this function and what does it do at a high level? (be specific):

rotate

This function takes a string or a list and moves the first p2 number of elements to the end

```
def func2(p1, p2, p3):
    ls = []
    for i in range(p1):
        ls2 = []
        for j in range(p2):
            ls2.append(p3)
        ls.append(ls2)
    return ls
```

P1: string float int boolean any type

P2: string float int boolean any type

P2: string float int boolean any type

What would you name this function and what does it do at a high level? (be specific):

populate_2d_list

This function creates a new list of lists and populates it with the value of p3 at every row, column

```
def func4(p1):
    for i in range(len(p1) // 2):
        if p1[i] != p1[len(p1) - i - 1]:
            return False
    return True
```

p1: string float int boolean list of strings list of ints list of booleans

What would you name this function and what does it do at a high level? (be specific):

is_palindrome

Tests to see if a string (case sensitive) or a list is a palindrome.

Writing functions # 1 (15 points)

Write a function, `is_sorted`, that takes a list of elements, `ls`, and checks to see if it is sorted. A list counts as sorted if every element at index *i* is less than or equal to the element at index *i + 1*. Do not mutate the given list of values.

Function call	**Return value**
`is_sorted([1, 2, 2, 3])`	`True`
`is_sorted([1, 1, -1, 0, 2])`	`False`
`is_sorted([97])`	`True`
`is_sorted(["cat", "dog", "mouse", "wolf"])`	`True`
`is_sorted(["zoo", "yak", "xylophone"])`	`False`
`is_sorted([])`	`True`

```
def is_sorted(ls):
    for i in range(1, len(ls)):
        if ls[i - 1] > ls[i]:
            return False
    return True
```