NYU – Tandon School of Engineering
Brooklyn, NY 11201

CS-UY 1114 / Python

First Midterm Exam – 10 April 2018
Prof. Katz

Name: _____

NetID(first part of email):_____

- Duration: 1 hour and 15 minutes
- **DO NOT WRITE ON THE BACK OF ANY PAGE!**
- Do not separate any page.
- **Please do not use pencil**, if you must, write darkly, these pages will be scanned
- If you write an answer other than in the space provided, please indicate, in the space provided, where we can find that answer
- **Please circle your answer for questions 1-4**
- This is a closed book exam, no calculators are allowed
- You can expect that the user inputs the appropriate values (int/float/etc where required).
- Comments are not required
- Anyone found cheating on this exam will receive a zero for the exam.
- Anyone who is found writing after time has been called will receive a zero for this exam.
- Do not open this test booklet until you are instructed to do so.
- If you have a question please ask the proctor of the exam!
- You may use ONLY the following Python constructs and functions!

(all math operators)	If,elif,else	for
(all conditional operators)	while	ord
math.* (all in math module)	int	chr
random.* (all in random module)	print	input
turtle.* (all in turtle module)	len	str
all methods in string class	return	
All methods in list class		

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1) **(15 points; 3 each) For each of the following show the value of var after the code runs or write ERROR if an error occurs.**

Code fragment	Value of var after the code runs Or ERROR if an error occurs
`s='abc';` `var=s[:-1]*3;`	

`ls1 = [1,2,3,4]`
`ls2 = [5,6];`
`ls1.append(ls2);`
`var = ls1.pop();`	

`ls=['a','bc','def']` `var = ls.find('de');`	
`s="ABCDEF";` `var = s[1::2]+s[::-2];`	
`s='ABBBCD';` `var = s.count("BB");`	

2) **(10 pts; 2 pts each; circle your answer) Assuming the following function calls are written in main directly below n=10 and given the following functions. Which are lines of code are valid and which will produce a syntax error? Assume each line is written by itself inside main under n=10. (note: if a function does not indicate a return, it doesn't return)**

```
def func1(a):

def func2(a):
        return 55;
def func3():

def func4():

def func5():
        return 55;
def main():
        n=10;
```

1) **n = func1(n);** **Valid** **Error**

2) **n = func2(n);** **Valid** **Error**

3) **print(func2(func5());** **Valid** **Error**

4) **func4(n);** **Valid** **Error**

5) **n=func5;** **Valid** **Error**

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3) (15 Points) What is the output from the following code?

```
def f1(x, y):
    print("F1");
    temp=x;
    x=y;
    y=temp;
    return y;

def f2(x, y):
    print("F2");
    z = f1(x,y);
    print("F2:X: ", x);
    print("F2:Y: ", y);
    print("F2:Z: ", z);

def main():
    x=10;
    y=20;
    f2(x,y);
    print("X:", x);
    print("Y:", y);

if __name__=='__main__':
    main();
```

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4) (15 Points) What is the output from the following code?

```
def func1(st, i):
    total=0;
    for cr in st:
        cr = cr.lower();
        if cr==i:
            total+=1;
    return total;

def func2(st):
    for i in range(ord('z')-ord('a')):
        let = chr(ord('a')+i);
        val = func1(st,let);
        print(let*val, sep='',end='');

def main():
    var="Take a deep breath";
    func2(var);


if __name__=="__main__":
    main();
```

The output from this code is:_____

5) (45 points) Please implement the following three functions

a. (20 pts) Implement a function, find_uncommon, which will take two lists as parameters to the function and return back a list of the items which appear ONLY in one list and not the other. For example, if the lists are [1,2,3] and [2,3,4] the result is [1,4].

b. (10 pts)Implement a function, get_values_in_range, which will get integer values from the user within a range given by two parameters lower and upper. Lower and upper can be included in the range but input should stop when a value outside the range is entered. You should return the, valid, entered values as a list

c. (5 pts)Implement a function, print_nicely, which prints the values in a given list (passed as a parameter) separated by spaces and without [].

d. (10 pts) Write a main (you do not have to call it) which, using the functions you wrote above, gets two lists of integers from the user and nicely prints out the uncommon values.

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