CS215 Chapter5D Lab – Complex List Manipulations Name:_____

***All user-defined functions could be at the TOP of your python file and each function should have a docstring.

Create a Python file called Lab5D_ComplexLists_YourName.py.

1. Use list comprehensions with filtering to create a second list called upperClassmen based on the students below. The new list should only contain the NAMES (so not the years) of those students who are juniors or seniors.

   Recall/HINT: If t = ("name", "year"), how do you get access to:

   the second coordinate? t[1]

   the first letter of the second coordinate? t[1][0]

   students = [("Karen", "Sophomore"), ("Pranshu", "Junior"), ("Ann", "Senior"),
   ("Carl", "Freshmen"), ("Cait", "Freshmen"), ("Kathleen", "Sophomore")]

2. Start with a list containing 1 through 10. Your goal is to sum the triples of the even integers in this list via the methods below.

   (a) First use filter, map, and the sum functions to accomplish your goal. If you need any functions, use inline functions, ie, lambda expressions. HINT: Fill in the blanks below.

   sum(map(lambda x: x*3, , filter (lambda x: x % 2 == 0 , range(1,11)))

   (b) Below your work for (a), reimplement your code with list comprehensions rather than using filter/map. HINT: Fill in the blank below.

   sum([number * 3 for number in range(1, 11) if number % 2 ==0])

3. (a) Guess what will be printed below. Write your guess below. Then check it. Correct your guess if wrong.

   Guess: 20, 8, 16, 12

   Correct: 20, 8, 16, 12

```
numbers = [10, 3, 7, 1, 9, 4, 2, 8, 5, 6]

l = list(map(lambda x: x * 2,
             filter(lambda x: x % 2 == 0, numbers)))

print (l)
```

(b) When combining filter and map operations, the order in which they're performed matters. Make a guess, then check by placing this code below that in part (a) and running it. *If the right answer does not make sense, ask me!!*

Guess: 20, 6, 14, 2, 18, 8, 4, 16, 10, 12

Correct: ^

```
l = list(filter(lambda x: x % 2 == 0,
            map(lambda x: x * 2, numbers)))

print(l)
```

SUBMISSION INFO

TO GET CREDIT FOR THIS LAB, UPLOAD THE FOLLOWING TO THE SUBMISSION AREA.

- LabCh5D_ComplexLists.pdf (with all blanks filled in)
- Lab5D_ComplexLists_YourName.py (all functions defined up top; all conventions followed.)