

## Winter '12 CIS 122 Final Review

You may bring one page of notes, front and back.

You may bring a calculator but shouldn't need one.

Questions will be in short-answer format with partial credit for partial answers.

Questions will require you to read Python code.

You will not need to write Python code, but may be asked to write high-level and Python pseudocode.

Topics:

- All midterm topics
- Lists: construction using [] and list(), access by index, append(), remove(), pop(), sort(), copying
- Tuples: construction using (), access by index
- Dictionaries: construction using {}, access by key, items(), keys(), values(), copy()
- Sets: construction using set(), intersection(), union()
- Common data-structure functions: len(), in, for/in
- Function scope: local variables in functions, mutability versus immutability

Sample questions:

1. [10] Consider the following code:

```
def f(a, b, c):  
    a    = 1  
    c    = b  
    c[0] = 2  
  
a = 10  
b = [11, 12, 13]  
c = [13, 14, 15]  
  
f(a, b, c)  
  
print a, b, c
```

What is printed by the above code? Why?

2. [10] Consider a function which takes two strings as input and returns a list containing all characters which appear in at least one of the strings, but characters in the output list should be unique (i.e., each character should only appear once):

- (5) Write high-level pseudocode (i.e., a step-by-step algorithm) for implementing the above function.
- (5) Write Python pseudocode (i.e., code which can be easily read by Python programmers but is not required to compile) for the above function.