CS 115 Exam 2, Fall 2011

Your name: ____________________________________________

Rules

• You may use one handwritten 8.5 x 11” cheat sheet (front and back). This is the only resource you may consult during this exam.

• Explain/show work if you want to receive partial credit for wrong answers.

• As long as your code is correct, you will get full credit. No points for style.

• When you write code, be sure that you clearly indicate the indentation level of each statement.

Grade (instructor use only)

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Problem 1: 40 points.
What will print to the screen when each of the following snippets of code is executed in IDLE?

Be very clear with spacing, line breaks, etc.

Note: the parts of this problem are independent.

(a)
```
s = "abcde"
for x in s:
    print(x)
```

(b)
```
s = ["abcde", "fg", "hi"]
for x in s:
    print(x)
```
(c)  
```
a = 5
while a > 2:
    print(a+1)
    a = a - 1
```

(d)  
```
for i in range(2):
    for j in range(3):
        print(i+j)
```

(e)  
```
L = [10, 20, 30, 40]
print(L[1])
```
For the rest of this problem, assume that the following functions have been defined:

```python
def f1():
    return 8

def f2(x):
    return 5 + x

def f3(L):
    return len(L)

def f4(x):
    y = x
    x = 12
    return y ** 2
```

What will the following snippets of code print?

(f) `print(f1())`

(g) `x = 300
y = 0
print(f2(y))`

(h) `a = [5, 4, 3, 2, 1, 0]
print(f3(a))`
(i)
    \[ x = 4 \]
    \[ \text{print}(f4(x)) \]
    \[ \text{print}(x) \]

(j)
    \[ \text{print}(f2(f2(0))) \]
Problem 2: 30 points.

Write functions to perform the following tasks.

Keep in mind the following:
- Your functions should NOT ask the user for input.
- Your functions should NOT print anything.
- Your functions should NOT call sys.exit() to terminate the program.

(a) Write a function called convert_dollars that...
   * has one input parameter: a price in cents
   * returns the corresponding price in dollars

(b) Write a function called find_candy that...
   * Takes 2 strings as input parameters
   * Returns the string "delicious" if at least one of the strings is "candy"
   * If neither of the string is "candy", returns the string "too bad!"
(c) Write a function called compare_lists that...
* Takes two lists of numbers as input parameters
* Returns False if the two lists are of unequal length
* Returns True if ALL elements of the first list are greater than the FIRST element of the second list. Returns False otherwise.
Problem 3: 30 points.
For this problem, you must write a complete program. That includes a docstring, a
def main(), any necessary library imports, etc.

Read the instructions carefully before you start coding!

Your program should contain the following:

1. A function called GetNum that does the following:
   o Asks the user to enter a number
   o If the user entered a valid number, returns that number
   o If the user did not enter a valid number, prints an error message and
     exits the program

2. A function called IsGrade that does the following:
   o Has one input parameter (a number)
   o Returns True if its input parameter is between 0 and 100 (inclusive)
     and False if it is not

3. A main function that does the following:
   o Uses GetNum to repeatedly prompt the user to enter a number,
     stopping when the user enters -1.
   o Uses IsGrade to test whether each number is a legitimate grade
   o If there were NO legitimate grades, prints an error message. You
     should only print this error message ONCE.
   o Otherwise, prints the average of all of the numbers that were
     legitimate grades. You should only print this average ONCE.