2017 SI@UCF Introduction to Programming in Python Test #1 Retake Solutions
6/23/2017

1) (5 pts) Produce a single Python statement that prints out the following (shown below):

```
He told me,"I have Sam's notebook."
```

(Hint: Use an escape sequence.)

`print("He told me,\"I have Sam's notebook.\"")`

Grading: 1 pt print, 1 pt text, 1 pt outer quotes, 2 pts escape sequence(s).

2) (10 pts) Evaluate the following expressions in Python:

a) `3 + 2*5`   **13**

b) `34/5`   **6.8**

c) `34//5`   **6**

d) `(6 + 2)*7//5`   **11**

e) `6 + 2*7//5`   **8**

Grading: 2 pts each, all or nothing

3) (10 pts) What is the output of the following segment of code:

```
x = 2
y = 5
z = 7
temp = 5*x + 3*y - 2*z
y = temp - y
x = x + 1
z = y - x
print("x =",x,"y =",y,"z =",z)
```

Answer: x = **3** y = **6** z = **3**

Grading: 3 pts for x, 3 pts for y, 4 pts for z, all or nothing.

4) (5 pts) Write a single line of code to read in a float from the user into the variable GPA. In reading in this information, prompt the user with the message: "What is your GPA?"

`GPA = float(input("What is your GPA?\n"))`

5) (10 pts) What is the output of the following segment of code:

```
x = 3
y = 4
if x > y:
    print("A", end="")
elif x < y:
    print("B", end="")
if 2*x > y:
    print("C", end="")
if x%y != x:
    print("D", end="")
```

BC

6) (10 pts) What is the output of the following segment of code?

```
sum = 0
term = 11
for i in range(4):
    print("i = ",i,"sum =", sum)
    sum = sum + term
    term = term + 2
print("sum =",sum)
```

i = 0 sum = 0
i = 1 sum = 11
i = 2 sum = 24
i = 3 sum = 39
sum = 56

7) (15 pts) Identify 5 errors in the segment of code below. Explain how to fix each of these errors.

```
distance = rate*time
rate = float(input("How fast did you drive(mph)?")
time == input("How many hours did you drive?")
print("You drove": distance, "miles")
```

Error #1: **rate and time are uninitialized on the first line**

Fix #1: **Move line 1 to line 3, right after the time = line.**

Error #2: **The second line is missing a close brace for the float function call.**

Fix #2: **Place another close brace at the end of the line.**

Error #3: **The third line has a ==.**

Fix#3: **Change the == on line 3 to =, the assignment operator**

Error #4: **line 3 should read in an integer or float, depending on your interpretation. It is currently reading in a string.**

Fix #4: **Encapsulate the whole right hand side of line 3 in either float(...) or int(...)**

Error #5: **Line 4 has invalid syntax for printing multiple items, since a : is used to separate items.**

Fix #5: **Change the : to a ,**

Grading: 3 pts for each Error/Fix combo, you decide partial

8) (15 pts) Complete the program below so that it asks the user for a positive integer, and then prints out all multiples of that integer less than 100000, except for numbers that end in 0. (For example, if the user entered 6, then the first five numbers your program would print would be 6, 12, 18, 24, and 36. 30 is skipped because it ends in 0.) Declare any extra variables you might need.

```
def main():
    n = int(input("Enter your integer.\n"))

    for i in range(n, 100000, n):
        if i % 10 != 0:
            print(i)

main()
```

Grading: 7 pts whole loop structure, 5 pts for if statement (1 pt if, 1 pt mod, 1 pt 10, 1 pt !=, 1 pt 0), 3 pts print

9) (15 pts) A simple formula for the height of an object dropped from Y feet high t seconds after it's dropped (on Earth) is $f(t) = Y - 16t^2$. Fill in the program below so that it prints out a chart of the height of an object after each second, starting with $t = 0$. The user will enter the initial height. The last line should print a height of 0, regardless of what the mathematical equation says, since the object won't fall below the ground.

```
def main():
    height = int(input("Enter the initial height.\n"))
    t = 0;

    init = height

    print("Time\tHeight")
    while height > 0:

        print(t,"\t",height)

        t = t+1
        height = init - 16*t*t
    print(t,"\t0")

main()
```

Grading: 2 pts assign initial before loop, 3 pts t increment, 5 pts height assign, 5 pts last print (1 pt print, 2 pts t, 2 pts hard-coded 0)

10) (5 pts) In what shape are the individual pieces of the popular cereal Froot Loops?

Loops (Grading: give to all)