

COSC235A Spring 2007
Test #1

Please read each question carefully and be sure to give complete answers. Work quickly and good luck!

1. (1 pt.) Print your name: _____
2. (10 pts.) For each of the follow, indicate whether it is a valid Python identifier or explain in two or three words why it isn't.
 - a) `2007TaxRate`
 - b) `return`
 - c) `Inflation_Rate`
 - d) `_example2`
 - e) `Tax+Increase`
3. (10 pts.) What are the results of each of the following operations?
 - a) `2 + 3**2`
 - b) `12 / 10 + 7 % 10`
 - c) `3.0 / 4.0 + 3 / 4`
 - d) `math.floor(7.9)`
 - e) `math.ceil(-2.1)`

4. (4 pts.) If I want to use string functions like `upper()` and `split()`, what statement must I include in my code so I can have access to these function?
5. (4 pts.) How would you convert the string "23.45" into a floating point number?
6. (6 pts.) Convert 10111_2 to decimal showing your work.
7. (6 pts.) Convert 57_{10} to binary showing your work.
8. (6 pts.) Write a Python expression to evaluate $3x + \sqrt{\frac{2(x-1)}{x^2}}$.
9. (10 pts.) Given `st1 = "quintessential"`. What will the following return?
- a) `st1[:]`
 - b) `st1[1:2]`
 - c) `st1[5]`
 - d) `st1[-3:]`
 - e) `st1[3:-3]`

10. (8 pts) Using `range()`, write code that will generate the following lists of numbers:

a) `[0, 1, 2, 3, 4, 5]`

b) `[2, 4, 6, 8, 10]`

c) `[-5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5]`

d) `[87, 86, 85, 84, 83, 82]`

11. (3 pts.) What is the final value of `x`, `y`, and `z`?

```
x, y, z = 1, 2, 3
x, y, z = z, y, x
x, z, y = x, y, x
```

12. (8 pts.) What will be printed by the following code? If the code fails to *execute* at some point, indicate the problem and the point at which the problem occurs.

```
x = 10
y = 20

def spam1(x, y):
    x = x + 1
    y = y + 1
    return x, y

def spam2(x, y):
    x = x + 1
    y = y + 1
    return y, x

x, y = spam1(x, y)
print x, y

spam2(x, y)
print x, y
```

13. (8 pts.) Write a function `ft2cm()` to convert from feet to centimeters. (There are 2.54 centimeters in an inch.) For example, `ft2cm(3)` would *return* `91.44`.
14. (8 pts.) Using `ord()` and `chr()`, write a function `next()` that will take a letter and return the next letter in the collating sequence. For example, `next("G")` would *return* `"H"`. (You don't need to worry about what comes after "Z".)
15. (8 pts.) Write an interactive program `printReverse()` that prompts the user to enter a string and then loops over the string printing it in reverse. For example, if the user enters `Hello`, the program will display `olleH`. (You don't need to worry about any extra spaces `print` may insert.)

Pledged: _____