CS 121 – Review questions for test 1

Many example questions can be found in the various chapter handouts that you received in class. Here are some more questions.

1. What are some similarities and differences between the Python language and the English language?

2. What are the rules for a valid identifier (variable name) in Python?

3. Write a `for` loop that prints the numbers (positive integers) from 1-12 inclusive.

4. Write a sequence of Python statements that will rotate the values of three integer variables a, b and c. In other words, the value of a goes into b, the value of b goes into c, and the value of c goes into a.

5. Suppose s1 and s2 are string variables. Show how we can determine how many characters in s1 need to be traversed until we find a character that exists in s2.

6. What is the output of this code?

```
x = 1
y = 1
i = 1
while i <= 5:
    z = x+y
    print(z)
    x = y
    y = z
    i = i + 1
```

7. What is the output of the code above if we reverse the two statements that follow the print statement?

8. Suppose that s is a string variable that contains a positive integer value, with one of its digits replaced by a question mark. For example, s could be "3?87". Write a loop that will print out all possible integer values this string could represent if the '?' is replaced by the digits 0 through 9.

9. Write a loop that prints, in ascending order, all 2-digit numbers (i.e. positive integers) that are factors of 2400 or multiples of 7. At the end, give the sum of all these numbers that have been printed.

10. Suppose a, b and c contain integer values. Show how to compute the following: divide the product of the 2 largest numbers by the smallest number.

11. Given a string s, how would we find the second occurrence of the lowercase letter 'e'?

12. Given a string s, how would we find the number of times that lowercase letter ‘e’ appears before the first ‘!’ in the string?

13. Give an example of each of the following: a syntax error, a run-time error, and a logical error.

14. What is the value of the variable sum after the following code executes?

```
sum = 0
number = 1
while number <= 12:
    sum = sum + number
    number = number + 3
```

15. Suppose a equals 2 ** 2 ** 3 and that b equals 2 ** 3 ** 2. Are a and b equal? If not, which variable contains the larger value?

16. What is the simplified value of this Python expression? 7 // 3 – 1 + 17 % 5 * 3

17. Suppose that the variable s contains this string: “art museum”. What is the value of each of these string expressions?
    a. s[4]
    b. s[–4]
    c. s[2 : 5]
    d. s[: : 2]
    e. s[: 3]

18. What does the following Python code accomplish? Assume that s is a string.

```
count = 0
for char in s:
    if char in "xyz":
        count += 1
print(count)
```

19. What is the output of this Python code?

```
x = 10
y = 1
while y < x:
    if x % y == 0:
        print(y)
    y = y + 1
```

20. In Python, how would we check a string to see if its first and last characters are the same?