COSC 251 Study Guide
Final
Spring 2017

1.) Define procedural language, functional language and imperative language.

2.) Name the 8 basic structures of a programming language.

3.) What does it mean if a language is weakly typed?

4.) What is the first major procedural language and who created it?

5.) Give two major properties of a procedural language.

6.) What is the basis of functional languages and who developed it?

7.) What is the first major functional language and who created it?

8.) Give an example of a declarative language.

9.) Who was the primarily person responsible for C?

10.) Why was C named C?

11.) What is K&R C?

12.) What is the difference between a long and an int?

13.) Name three properties that C has due to C++.

14.) What is the standard main signature in C?

15.) Give an example of an if statement in C.

16.) Define what each of these operators are: *, &, ++ in C.

17.) Given the following code, what will be printed out:

```
int *a = NULL;
a = new int;
a = 25;
printf("%i", *a);
```

18.) Give the code to create a Fibonacci sequence recursively in C and in LISP. Your function should take in an integer that represents where we should stop the sequence and your output should be every number in the Fibonacci sequence to that point.

19.) Create a class circle in C++. Be sure to include all assessors and mutators necessary. All of your functions must make sense and be complete. You will need to create both the header file information and the class definition file information. Do the same in Python.

20.) Why is Python called Python?

21.) What kind of typing does Python feature? Define that kind of typing.

22.) List 5 primitive, built-in types in Python.

23.) Give the code to create a loop that will print out every member of a list **mylist** in Python.

24.) Give that same code in LISP. Assume that you are printing only the first level.

25.) Give the code to define a function to print out the factorial of a given number in both Python and LISP.

26.) How do we use a list as a stack in Python? Give the appropriate calls for push, pop and top.

27.) In LISP, are (list 1 2) and (cons 1 2) equivalent? Why or why not?

28.) Give the car/cdr commands to get every atom out of the list (1 2 (3 4 5 (6 7) 8) 9).

29.) How are expressions executed in Whenever? What do defer and again do?

30.) Give the Whenever code to take two integers from the user, add them, then print the result.

31.) Give the code (in LISP) to create a function that will take in one parameter, **n**, and create a list of size n.

32.) If I wanted to compare two character variables, **n** and **m**, and print "less than" if **n** is less than **m**, print "greater than" if **n** is greater than **m**, and print "equal" if **n** is case-insensitive equal to **m**, how would I do this in LISP?

33.) List and give examples of three control structures in LISP.

34.) What are the stages of compilation? Describe each of those stages.

35.) How do you change a particular row in SQL? Give an example statement.