CMSC 201 Section 40
Sample Exam 1

Notes:

1. This exam has the same number and types of questions as will the actual exam
2. The actual exam lasts 75 minutes. If you want a realistic simulation, allow yourself 75 minutes to work through this.
3. Answers to this sample exam will be provided in a separate file.

Section 1: Multiple Choice/True-False questions.

10 questions; 3 points each. No partial credit will be given for these questions.

1. Which of the following is NOT a valid Python variable name?
    a. `Too_Much_4_me`
    b. `__main_program___`
    c. `Never-will-work`
    d. `j`

2. Which of the following is the best description of the Python symbol table?
    a. The computer's memory that contains the actual values associated with each variable
    b. A data structure that contains each symbol (variable, constant or function name) currently known by the program; the type associated with each symbol; and a link or pointer to the location in memory where the value associated with that symbol is located
    c. A table of emojis recognized by Python
    d. None of the above is correct

3. True or False: All input received from the keyboard is read in as strings
    a. True
    b. False

4. True or false: a global variable is a variable that is defined inside a function, and can only be used within that function
    a. True
    b. False

5. Suppose you have the following list assignment:
   ```
   l = [1,2,3,4,5]
   ```
   Which of the following statements will get rid of the value 3, leaving you with
   ```
   l = [1,2,4,5]
   ```
   a. l.pop(3)
   b. l.remove(2)
   c. Either a or b will work
   d. None of the above will work

6. When you write a for i loop like:
   ```
   for i in range(20):
   ```
   What do you know about how many times the loop will be executed? (Presume that there is no "break" statement in the loop because those are banned in CMSC 201.)
   a. The loop will be executed exactly once, with i having a value of 20
   b. The loop will never be executed because this statement is an error
   c. The loop will be executed exactly 20 times.
   d. None of the above is true.

7. True or False: A while loop is the most general type of Python loop we have studied. If a problem can be solved using a for loop, it can also be solved using a while loop.
   a. True
   b. False

8. X = 9 and Y = 2. Which of the following is true about X and Y?
   ```
   a. X//Y = 1 and X%Y = 4
   b. X/Y = 4 and X%Y = 1
   c. X//Y = 4 and X%Y = 1
   ```
   d. None of the above is true

9. True or False: in evaluating a Boolean expression, Python does all arithmetic operations before applying the logical operators and, or, and not
   a. True
   b. False

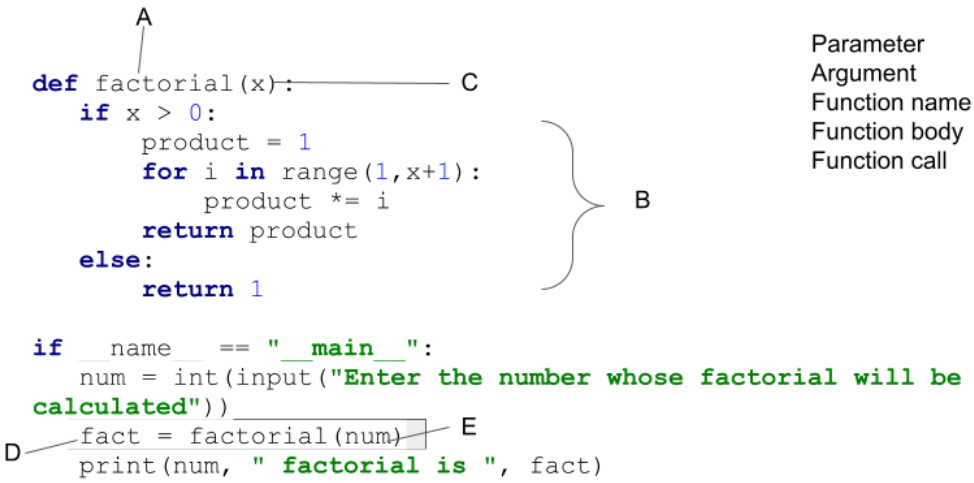
10. The string name has the value " `The Rams won the Super Bowl!!` "
    Which of the following methods removes the whitespace from the front of the string but not the back?
    a. `name.lstrip()`
    b. `name.strip()`
    c. `name.rstrip()`
    d. All of the above would work

Section 2: Short Answer questions

8 questions; 5 points each. Partial credit will be given for these questions

11. Name and explain the four types of program control flow we have covered so far this semester.

12. Functions - give a program with a function; ask students to identify each part of the program (parameter, argument, function body, function call, return)




```
def factorial(x):
    if x > 0:
        product = 1
        for i in range(1,x+1):
            product *= i
        return product
    else:
        return 1

if __name__ == "__main__":
    num = int(input("Enter the number whose factorial will be
calculated"))
    fact = factorial(num)
    print(num, " factorial is ", fact)
```

13. Why won't the following Python code work correctly?

```
pay_rate = float(input("what is your current pay rate in dollars and cents per hour?))
2_times_pay= pay_rate * 2
print(" we'll double your pay to ", 2_times_pay, "dollars per hour")
```

14. Suppose that student_names is a list. Write a "for i" loop that prints out all the student_name values, one per line.

15. Suppose that student_names is a list. What happens if I try to print out the final name in the list using

```
print(student_names[len(student_names])
```

?

Explain why.

.

16. Explain the difference between appending a value to a list and inserting a value into the list.

17. Suppose that x has the value 6.28 and y has the value 2. Explain the difference between

```
x / y
```

and

```
x//y
```

18. What is the value of the expression:

```
False or not((6//5)>1) and 4 == 10%6
```

Section 3: Programming questions.

2 questions; 15 points each. Partial credit will be given for these questions

16. Write a Python program the prompts a user for five grades, and appends each grade in turn to a list. You need not validate the user's input; assume that the user will do this correctly.

17.Write a Python program that asks the user to input a floating point number. Assume that the user will enter a valid floating point number; no error checking is necessary. Then, if the number is greater than 0.0, print out "that's positive" If the number is less than 0.0, print out "that's negative" If the number is equal to 0.0, print out "that's a zero."