

Midterm exam - CS5000 (October 2, 2017)

Name: _____

Question:	1	2	3	4	5	6	7	8	Total
Points:	10	10	15	15	15	30	30	30	155
Score:									

1. (10 points) Write Java code to create a variable of type String, called name, and initialize it to your name

```
1 String name="Orlando";
```

or

```
1 String name;  
2 name="Orlando";
```

Several people went here to define a **function** ; variables store data; functions (or methods) perform calculations. Different syntax

2. (10 points) Given the following code fragment, what would be the value of ans at the end ?

```
1 int a=10, b=a+1;    // a=10, b=11  
2 ++a;               // a=11  
3 b *=2;              // b = 2*11 = 22  
4 ans = b-a;          // ans = 22-11 = 11
```

Several people got confused on line 3, and re-calculated the value of b ; assignment is nothing like algebra; it just puts a value in a box. After the assignment, the expressions don't have a relationship any more.

3. (15 points) Write a java function called add, that takes two integers and returns an integer, the result of adding its two parameters

```
1 int add(int a, int b) {  
2     return a+b;  
3 }
```

4. (15 points) (Sunday) Write a java function called times, that takes two integers and returns an integer, the result of multiplying its two parameters

```
1 int add(int a, int b) {  
2     return a+b;  
3 }
```

5. (15 points) (Sunday wording) Using a case statement, write a java function called seasons, that takes an int and returns a string, and converts numbers from 0-3 into the seasons of the year (0=Spring, 1=Summer, 2=Fall, 3=Winter)

```
1 String season(int n) {  
2     switch(n) {  
3         case 0:  
4             return "Spring";  
5         case 1:  
6             return "Summer";  
7         case 2:  
8             return "Fall";  
9         case 3:  
10            return "Winter";  
11    }  
12    return "Invalid value";  
13 }
```

6. (30 points) Using recursion (no loops allowed) write a function called PrintByStep, that takes two parameters, a PrintStream and an int (say, step). The function prints to the printstream all numbers from 0 to 100, incrementing by step (so, for example, PrintByStep(System.out, 20) would print 0,20,40,60,80,100)

7. (30 points) (Sunday) Using recursion (no loops allowed) write a function called PrintByStep, that takes three parameters, a PrintStream and an two ints(say, low and high). The function prints to the printstream all numbers from low to high, incrementing by 5 (so, for example, PrintByStep(System.out, 1,15) would print 1,6,11). You may need to define a recursion function with extra parameters and call it.
8. (30 points) Using recursion (no loops allowed) write a function called stringContains that takes two parameters, a String and a char ; stringContains returns true if the string contains the character, false otherwise. Hint - You can assume there are functions first, that takes a string and returns a char, and rest, that take a string and returns the string without the first character. Alternatively, define a function that takes 3 parameters and use charAt and length

Total questions: 8 Total points: 155