Name: _____

<div align="center">CS5000 Miterm Exam (Sunday edition)</div>

1(5)	2(5)	3(10)	4(15)	5(15)
6(10)	7(25)	8(25)	Total(110)	

1. _____ (5pts) Write java code to create a boolean variable, called amISmart and assign it the value true.

2. _____ (5 pts) Given the following code fragment, what would be the value of ans at the end ?

```java
int a=5, b;
a=a+5;
b=a+4;
++a;
int ans=a+b;
```

3. _____ (10 pts) Write a function called isOdd that takes an int and returns a boolean; the function returns true if the number is odd and false otherwise (remember the % operator returns the remainder of the integer division of two numbers).

4. _____ (15 pts) Write a function called classifyAge that takes an int, say age, and returns a string; the function returns "kid" if age is between 0 and 12 (all ranges inclusive), "teen" if between 13 and 19, "adult" if between 20 and 65, "senior" if between 65 and 120, and "invalid" if not in any of these categories.

5. _____ (15 pts) Given the following function:

```java
public static int foo(int a) {
    if (a<=0)
        return 1;
    else
        return a*foo(a-2);
}
```

(5 pts) What would bar(-1) return ?   _____

(10 pts) What would bar(3) return ?   _____

6. _____ (10 pts) Given the following function:

```java
public static String bar(char c1, char c2) {
    String ans="";
    for(char c=c1; c<=c2; ++c)
        ans+=c;
    return ans;
}
```

What would bar('a','c') return ?   _____

7. _____ (25 pts) Write a function called readWithin0_100, that takes one parameter, a Scanner, and returns an int; this function prints a message for the user and read a number; if the number is not between 0 and 100. it asks and reads again, until it reads a valid number; it then returns that valid number.

8. _____ (25 pts) Write a function called power, that takes two ints, say base and exponent, and returns the first parameter (base) raised to the exponent power (the return value is also an int; you cannot use Math.pow or any other java function that does this :)