Grading

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1. (4 points) What is your course section?

    CS 101   CS 101E

The following definitions are in effect throughout the remainder of the test.

```java
public class A {
    private int v1;
    private int v2;

    public A(int f1, int f2) {
        this.v1 = f1;
        this.v2 = f2;
    }
    public String toString() {
        return "( v1 = " + v1 + " " + v2 + ")";
    }
}

public class B {
    private int b;

    public B() {
        System.out.println("b = " + b);
    }
}

public Class C {
    private int c1;
    static private int c2;

    public C() {
        c1 = 0;
        c2 = 0;
    }
    public void increment() {
        ++c1;
        ++c2;
    }
    public String toString() {
        return "( c1 = " + c1 + " c2 = " + c2 + ")";
    }
}
```

2. (8 points) Evaluate the following expressions and give the value.

    a) `10 == 20 && 20 <= 10`   _____

    b) `true || false && false`   _____

    c) `! true && false`   _____

    d) `10 + 10 <= 20 || 10 != 10`   _____

3. (4 points) Complete the truth table for the logical operation *some*. The logical operation *some* is true if and only if at least one of p and q are false.

p	q	p some q
false	false	
false	true	
true	false	
true	true	

4. (4 points) Complete the truth table for the logical operation *less*. The logical operation *less* is true if and only if $p < q$. Hint: false < true.

p	q	p less q
false	false	
false	true	
true	false	
true	true	

5. (4 points) What is the output of the following code segment?

```
B myB = new B();

b =
```

6. (3 points) Consider the following code segment.

```
int n1 = 12;
int n2 = 144;
if (n2 < n1) {
    n1 = 10;
}
System.out.println("n1 = " + n1);
```

What is its output?

```
n1 =
```

7. (3 points) Consider the following code segment.

```
String s1 = "wahoo";
String s2 = "wahoo";
if (s2 == s1) {
    s1 = "UVA";
}
System.out.println("s1 = " + s1);
```

What is its output?

```
s1 =
```

8. (3 points) Consider the following code segment.

```
String s1 = new String("wahoo");
String s2 = new String("wahoo");
if (s2.equals(s1)) {
    s1 = "UVA";
}
System.out.println("s1 = " + s1);
```

What is its output?

```
s1 =
```

9. (4 points) Consider the following code segment?

```
C n1 = new C();
C n2 = new C();
n1.increment();
n2.increment()
System.out.println( n1.toString() );
System.out.println( n2.toString() );
```

What is its output?

```
( c1 =          c2 =              )

( c1 =          c2 =              )
```

10. (4 points) Does the following program compile? Why?

```
public class DemoB {
   public static void main(String[] args) {
      B b1 = new B();
      B b2 = b1;
      int v = b1.b;
      System.out.println( v );
   }
}
```

11. (2 points) Does the following program compile? Why?

```
public class DemoA {
   public static void main(String[] args) {
      A a = new A();
      System.out.println( a );
   }
}
```

12. (4 points) Rewrite the following code segment using proper indentation.

```
if (n == 1) { i = 1; } else { if (n != 2) { i = 2; } else { i = 3; } }
```

Questions 13 – 15 consider the following code segment.

```
if ( i != 4 ) {
    if ( (i + j) < 6 ) {
        System.out.println("A");
    }
    else {
        System.out.println ("B");
    }
}
else if ( i > j ) {
    System.out.println("C");
}
else {
    if ( j == 3 ) {
        System.out.println("D");
    }
    else {
        System.out.println ("E");
    }
}
```

13. (4 points) If i is 6 and j is 5, what is the output?

14. (4 points) If i is 4 and j is 5, what is the output?

15. (4 points) Give values for i and j that cause D to be displayed.

     i =   j =

16. (8 points) Write a default constructor for class A initializes the instance variables to the int value 1.

17. (6 points) Write an appropriately named accessor for class A that returns the value of the v1 attribute of the invoking object.

18. (6 points) Write an appropriately named mutator for class A, which has a single `int` parameter `f1`. The mutator sets the `v1` attribute of the invoking object to `f1`.

19. (7 points) Write an `equals()` method for class A. The method should return true if and only if the actual parameter is an A object whose attributes match the attributes of the invoking object.

20. (4 points) Complete the following code segment in the following manner.
   - `a1` references a new default constructed A object.
   - `a2` references a new A object constructed so that its attributes both equal 10.

   ```
   A a1 =

   A a2 =
   ```

21. (10 points) Write a program named `ProcessTwo.java`. The program prompts and extracts an integer number from standard input. If the first number is less than 5 then the program displays "Wahoo"; otherwise it displays "Cavalier". Commenting and input echoing is not necessary.

PLEDGE: