

# CS 4501/6501: Quiz 11

14-Nov-2017

**Names:**

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**Instruction:** Answer the questions as concisely as you can. Please write neatly; if I can't read it I have to mark it wrong.

**There are 2 pages!**

Consider the following code:

```
static void fun (boolean a, boolean b, boolean c) {  
    boolean d = b || c;  
    boolean e = a && d;  
    if (e) {  
        System.out.println("Hello!");  
    }  
    else {  
        System.out.println("Good Bye!");  
    }  
}
```

1. (4 pts.) Derive a GACC test set for `fun()`. Reminder: you need to cover all related variables / clauses.

**Answer:**

The following result for GACC is based on the truth table on the right:

Major Clause	Set of possible tests
<b>a</b>	(1,5), (1,6), (1,7), (2,5), (2,6), (2,7), (3,5), (3,6), (3,7)
<b>b</b>	(2,4)
<b>c</b>	(3,4)

Truth Table:

Row#	a	b	c	P	Pa	Pb	Pc
1	T	T	T	T	T		
2	T	T		T	T	T	
3	T		T	T	T		T
4	T					T	T
5		T	T		T		
6		T			T		
7			T		T		
8							

Consider the following BNF:

```
P ::= I D Y | I Y D | D I Y | D Y I | Y I D | Y D I  
I ::= "j" | "s"  
D ::= "9" | "21"  
Y ::= "0" | "4"
```

1. (2 pts.) Write two strings that are valid according to the BNF (i.e., ground strings)

**Answer:**

s90, 21j4

2. (2 pts.) Write a valid mutant for each of your ground strings; that is, you need a total of two valid mutants (one for each ground string)

**Answer:**

s210, 21s4

3. (2 pts.) Write an invalid mutant for each of your ground strings; that is, you need a total of two invalid mutants (one for each ground string)

**Answer:**

s9j, 21j9