

1. Consider the following grammar for if-else statement:

$\langle \text{stmt} \rangle \rightarrow \langle \text{stmt} \rangle$

| $\langle \text{if_stmt} \rangle$

$\langle \text{if_stmt} \rangle \rightarrow \text{if } \langle \text{logic_expr} \rangle \text{ then } \langle \text{stmt} \rangle$

| $\text{if } \langle \text{logic_expr} \rangle \text{ then } \langle \text{stmt} \rangle \text{ else } \langle \text{stmt} \rangle$

Complete the definition of the grammar in such a way that the following statement can be generated from the grammar

```
if a == true
    then if b == 0
        then c = 0;
    else c = d / b;
```

2. Is this grammar ambiguous? Show by means of parse tree drawings.
3. If the above grammar is proven to be ambiguous, propose a modification to the grammar that can make it unambiguous.

Submit answer to question 2 and 3 by 5 p.m. on Friday, 21st October 2011.