CS 442/542 Fall 2020 Quiz 6 **Name:**_____

Use the following grammar to answer questions 1 and 2.

Prog -> StmtSeq
StmtSeq -> Stmt StmtSeq
StmtSeq -> ε
Stmt -> Id = Expr ;
Expr -> Expr || Term
Expr -> Term
Term -> Term && Factor
Term -> Factor
Factor -> ! Factor
Factor -> (Expr)
Factor -> Id
Factor -> True
Factor -> False

1. Show the top down construction of the parse tree for the following input up to and including the point where the x in line 4 (w = x && z || y;) is added to the tree. Do not show the whole parse tree.

x = True;
y = False;
z = True;
w = x && z || y;

2. Show the bottom up construction of the parse tree for the following input up to and including the second time a node with the value StmtSeq is added to the tree. Note your answer will not be a single tree. It will be a collection of tress that have not yet been joined into a single tree. For example if you look at slide 42 in the slides on building parse trees there are three trees. One tree with a root of Stmt, a second tree with a root of Stmt and a third tree with a root of StmtSeq. Do not show the whole parse tree.

```
x = True;
y = False;
z = True;
w = x && z || y;
```