CSE 420: Compiler Design

Quiz 3

Time: 30 minutes

Student ID:

Student Name:

Question 1 (10 points): For the following attribute grammar, show how the type and width of the following variables is determined by drawing how attributes are passed along the parse tree. In addition, compute the values of the attributes for each non-terminal node in the parse tree.

P -> D D -> T id {symbol = symbolTable.get(id.lexeme); symbol.type = T.type; symbol.width = T.width;} ; D D -> € T -> B {C.bT = B.type; C.bW=b.width;} C {T.type = C.type; T.width = C.width} B -> int {B.type = int; B.width = 4;} B -> float {B.type = float; B.width = 8;} C -> [num] {C_1.bT = C.bT; C_1.bW=C.bW;} C_1 {C.type = array(num, C_1.type), C.width = C_1.width * num.value;} C -> € {C.type = C.bT; C.width = C.bW}	int x; float[5][3][10] array1; int[10] array2;