**Instructions:** This homework assignment focuses primarily on C++ scope rules and functions. The answers to the following questions can be determined from Chapters 3 through 8 of the lecture notes and Chapters 2 through 8 of the text. When code fragments are given, assume the presence of any include directives that are needed to ensure compilation.

After you have analyzed the questions and decided what answers you believe are correct, you may find it useful to write some short programs to test your logic.

The on-line Opscan form for this quiz provided by the Curator system must be used for this assignment. (No other submissions will be accepted!) Check the course web site for the due date for this quiz.

The CS1044 online quizzes are open book, open notes, open Web quizzes. It is an honor code violation to discuss, (in any form: written, verbal or electronic), any portion of these quizzes with any other students, (regardless of whether they are taking the course or not). It is also an honor code violation to have a copy of a quiz, (in any form: written, verbal or electronic), in your possession when not taking a quiz. Failure to adhere to any of these restrictions is a Va Tech Honor Code violation, ([www.honorsystem.vt.edu](http://www.honorsystem.vt.edu)).

---

1. Which of the following statements concerning the scope of C++ identifiers is correct?
   1) The scope of an identifier begins at the point of its declaration and terminates at the end of the file containing the code.
   2) The scope of an identifier begins at the beginning of the block in which it is declared and terminates at the end of the block, if any, that contains its declaration.
   3) The scope of an identifier begins at the point of its declaration and terminates at the end of the block, if any, which contains its declaration.
   4) None of these are correct

2. If an identifier Alpha is accessible only within a function F, then Alpha is either:
   1) declared with global scope or a formal parameter of F.
   2) declared locally within F or a formal parameter of F.
   3) declared with global scope or an actual parameter passed to F.
   4) declared locally within F or an actual parameter to F.
   5) None of these

3. If the identifier Beta is declared as a formal parameter of a function F, then the scope of Beta:
   1) is the body of the implementation of F.
   2) extends from the declaration of the function F to the end of the file containing the code.
   3) is empty; that is, Beta has no scope.
   4) None of these
4. Suppose the first few lines of a function are as follows:

```c
    double Calc( double Beta ) {
        Alpha = 3.8 * Beta;
        . . .
    }
```

If the code compiles, then the variable Alpha must be:

1) a local variable declared later in the body of Calc()
2) a global variable
3) a parameter passed to Calc()
4) 1 or 2 only
5) 1 or 3 only
6) 2 or 3 only
7) None of these

For questions 5 through 9, consider the following program:

```c
const int LIMIT = 50;  // Line 1
int AddEm(int x, int y);  // Line 2

int main() {  // Line 3
    int x = 42,  // Line 4
        y = 35;  // Line 5
    int Sum;  // Line 6
    Sum = AddEm(x, y);  // Line 7
    return 0;  // Line 8
}

int AddEm(int x, int y) {  // Line 10
    int Total;  // Line 11
    Total = x + y;  // Line 12
    if (Total > LIMIT)  // Line 13
        Total = 0;  // Line 14
    return (Total);  // Line 15
}
```

5. What is the scope of the identifier Sum that is declared in Line 6?

1) Line 1 to Line 16
2) Line 6 to Line 16
3) Line 6
4) Line 6 to Line 7
5) Line 6 to Line 9
6) None of these

6. What is the scope of the identifier x that is declared in Line 4?

1) Line 1 to Line 16
2) Line 4 to Line 16
3) Line 4
4) Line 4 to Line 7
5) Line 4 to Line 9
6) None of these

7. What is the scope of the identifier x that is declared in Line 10?

1) Line 1 to Line 16
2) Line 4 to Line 16
3) Line 10
4) Line 10 to Line 12
5) Line 10 to Line 16
6) None of these

8. What is the scope of the identifier LIMIT that is declared in Line 1?

1) Line 1 to Line 16
2) Line 1 to Line 3
3) Line 1
4) None of these
9. Which of the following are true?

   1) LIMIT is local to main()
   2) Total is local to AddEm()
   3) Sum is local to main()
   4) LIMIT is global
   5) x is global
   6) All of them are true
   7) All but 1 are true
   8) 2 and 3 only
   9) 2, 3 and 4 only
   10) None of these

10. Formal parameters are listed in the function ______ and actual parameters are listed in the function __________.

   1) call, implementation
   2) implementation, call
   3) header, body
   4) body, header
   5) None of these

11. When parameters are passed between the calling code and the called function, formal and actual parameters are matched according to:

   1) their data types
   2) their names
   3) their relative positions in the formal and actual parameter lists
   4) whether they are inputs to or outputs from the function
   5) None of these

12. A parameter of a simple type, such as int or double, should be passed by value if that parameter's data flow is:

   1) one-way, into the function.
   2) one-way, out of the function.
   3) two-way, into and out of the function.
   4) None of these

13. Which of the following statements are true when a parameter is passed by value?

   1) The actual parameter is never modified by execution of the called function.
   2) The formal parameter is never modified by execution of the called function.
   3) The actual parameter must be a variable.
   4) All of these are false.
   5) 2 and 3 only
   6) None of these
14. Which of the following statements are true when a parameter is passed by reference?

1) The actual parameter can be modified by execution of the called function.
2) The formal parameter can be modified by execution of the called function.
3) The actual parameter cannot be a variable.
4) All of these are false.
5) 1 and 2 only
6) None of these

15. Which of the following statements are true when a parameter is passed by constant reference?

1) The actual parameter can be modified by execution of the called function.
2) The formal parameter can be modified by execution of the called function.
3) The actual parameter cannot be a variable.
4) All of these are false.
5) 1 and 2 only
6) None of these

On-line submission of a quiz constitutes your Virginia Tech Honor Code Pledge:

Virginia Tech Honor Code:

"On my honor, I have neither given nor received unauthorized aid on this examination."