Instructions: This quiz homework assignment focuses primarily on some of the basic input and output of C++. The answers to the following questions can be determined from Chapters 3 and 4 of the lecture notes and Chapters 2 through 4 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.

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1. What value is printed for loopCount if the following code fragment is executed?

```cpp
int loopCount = 1, alpha = 5;
while (loopCount <= 145) {
    alpha = alpha + 7;
    loopCount++;
}
cout << "loopCount = " << loopCount << endl;
```

1) 1          3) 145          5) None of these
2) 144        4) 146

2. What value is printed for someInt when the following code fragment is executed?

```cpp
int someInt = 273;
while (someInt > 500) {
    someInt = someInt - 3;
}  
cout << "someInt = " << someInt << endl;
```

1) 270          3) 497          5) Infinite loop
2) 273          4) 500          6) None of these
3. What is the logical condition under which the following while loop will terminate?

```cpp
int Beta = 5;
while (Beta >= 0 && Beta < 10) {
    cout << Beta << endl;
    cin  >> Beta;
}
```

1) Beta < 0 && Beta >= 10  
2) Beta <= 0 && Beta > 10   
3) Beta < 0 || Beta > 10   
4) Beta <= 0 || Beta >= 10  
5) Beta < 0 || Beta >= 10  
6) None of these

4. What is the output of the following code fragment?

```cpp
int n = 1;
while (n <= 5) {
    cout << n << " ";
    n++;
}
```

1) 1 2 3 4 5  
2) 1 2 3 4  
3) 1 1 1  forever  
4) 2 3 4 5  
5) 2 3 4 5 6  
6) None of these

5. What is the output of the following code fragment?

```cpp
int n = 1;
while (n <= 5) {
    cout << n << " ";
    n++;
}
```

1) 1 2 3 4 5  
2) 1 2 3 4  
3) 1 1 1  forever  
4) 2 3 4 5  
5) 2 3 4 5 6  
6) None of these

6. What is the output of the following code fragment? (Be careful here.)

```cpp
int n = 1;
while (n <= 5) {
    cout << n << " ";
    n++;
}
```

1) 1 2 3 4 5  
2) 1 2 3 4  
3) 1 1 1  forever  
4) 2 3 4 5  
5) 2 3 4 5 6  
6) None of these

7. When designing a specification for an input file, which of the following would be a poor choice for a sentinel value?

1) a value of 79 for voter ages  
2) a value of 800 for SAT scores  
3) a value of -1 for student heights  
4) a value of "No one" for student names  
5) All of them  
6) 1 and 2 only  
7) 1 and 3 only  
8) 2 and 3 only  
9) 2 and 4 only  
10) None of these
8. With respect to the loop in the following `main()` function, what is missing?

```cpp
#include <iostream>
using namespace std;
int main() {
    int loopCount = 4;
    int Output = 7;
    while (loopCount <= 8) {
        cout << Output << endl;
        Output++;
    }
    return 0;
}
```

1) the initialization of the loop control variable
2) the testing of the loop control variable
3) the update of the loop control variable
4) Nothing is missing.

9. Indicate where (if at all) the following loop needs a priming read.

```cpp
int Sum = 0;               // line 1
int Number;                // line 2
while (inFile) {           // line 3
    Sum = Sum + Number;    // line 4
    inFile >> Number;      // line 5
}                          // line 6
```

1) before line 1
2) at line 2
3) at line 4
4) at line 6
5) at line 8
6) at line 10
7) No priming read is necessary.

10. To produce the output 2 4 6 8 10, what loop condition should be used in the blank below?

```cpp
int N = 0;
do {
    N = N + 2;
    cout << N << ' ';
} while (_______);
```

1) N <= 10
2) N < 10
3) N < 8
4) N >= 2
5) N > 8
6) None of these
11. After execution of the following code, what value is printed for Length?

```c
int Length = 5,
    Count = 4;
while (Count <= 6) {
    if (Length >= 100)
        Length = Length - 2;
    else
        Length = Count * Length;
    Count++;
} cout << "Length = " << Length << endl;
```

1) 20  
2) 98  
3) 100 
4) 600 
5) None of these

12. In the following code fragment, a semicolon appears at the end of the line containing the while condition.

```c
cout << 'A';
int loopCount = 1;
while (loopCount <= 3);
{
    cout << 'B';
    loopCount++;
}
cout << 'C';
```

The result will be:

1) the output AC  
2) the output ABC 
3) the output ABBBC  
4) a compile-time error 
5) an infinite loop 
6) None of these

13. What is the output of the following code fragment?

```c
int Sum = 0,
    outerCount = 1;
while (outerCount <= 3) {
    int innerCount = 1;
    while (innerCount <= outerCount) {
        Sum = Sum + innerCount;
        innerCount++;
    }
    outerCount++;
} cout << Sum << endl;
```

1) 1  
2) 4  
3) 10  
4) 20 
5) 35 
6) None of these
14. Which for loop is equivalent to the following while loop? Equivalent here means that the value of each of the variables would be the same when the code has completed execution.

```c
int count = -5, sum = 0;
while (count <= 15) {
    sum = sum + count;
    count++;
}
```

1) int count, sum = 0;
   for (count = -5; count <= 15; count++)
      sum = sum + count;

2) int count, sum = 0;
   for (count = -5; count <= 15; count++) {
      sum = sum + count;
      count++;
   }

3) int count, sum;
   for (count = -5, sum = 0; count <= 15; count++) {
      sum = sum + count;
   }

4) int count, sum = 0;
   for (count = 1; count <= 21; count++)
      sum = sum + count;

5) All of these 8) 1 and 4 only
6) 1 and 2 only 9) None of these
7) 1 and 3 only

15. What is the output of the following code fragment?

```c
for (int loopCount = 1; loopCount <= 6; loopCount = loopCount + 2)
    cout << loopCount << ' ';

cout << "Done" << endl;
```

1) Done 4) 1 3 5 Done
2) 1 Done 5) 1 3 5 7 Done
3) 1 3 Done 6) None of these

16. What is the output of the following code fragment?

```c
for (int loopCount = 1; loopCount > 3; loopCount++)
    cout << loopCount << ' ';

cout << "Done" << endl;
```

1) Done 4) 1 2 3 Done
2) 1 Done 5) 1 2 3 4 Done
3) 1 2 Done 6) None of these
17. In the following code fragment, the programmer mistakenly placed a semicolon at the end of the `for` statement heading. What is the result?

```cpp
cout << 'A';
for (int count = 1; count <= 3; count++);
cout << 'B';
cout << 'C';
```

1) a compile-time error 4) the output **ABBC**
2) an infinite loop 5) the output **ABBBC**
3) the output **ABC** 6) None of these

18. What is the output of the following code fragment?

```cpp
int n = 2;
for (int loopCount = 1; loopCount <= 3; loopCount++) {
    while (n <= 4) {
        n = 2 * n;
    }
    cout << n << endl;
}
```

1) 4 4) 32
2) 8 5) 64
3) 16 6) None of these

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