Instructions: This homework assignment focuses primarily on some of the basic syntax and semantics of C++. The answers to the following questions can be determined from Chapters 3 through 6 of the lecture notes and Chapters 5 and 6 of the text.

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. Submit your answers to the Curator collection point `HWQuiz5`.

---

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

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

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

---

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

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

1) `270`
2) `273`
3) `497`
4) `500`
5) `infinite loop`
6) `None of these`

---

3. What is the logical condition under which the following `while` loop will terminate?

```
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?

```
int n = 1;
while (n <= 5) {
    n++;
    cout << 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? (Be careful here.)

```
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. With respect to the loop in the following `main()` function, what is missing?

```
#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.

---

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

```
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

---

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

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

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

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

9. 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.

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

---

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

```
int n = 2;

for (int loopCount = 1; loopCount <= 3; loopCount++) {

    while ( n <= 4 )
        n = 2 * n;
}
cout << n << endl;
```

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