CSC1321 Programming in C++ **Review Questions for Chapter 6**
Professor: Zhang

Name: _____ Score: _____

while loop

1. (5 points) True or False? In the C++ program fragment

```
count = 1;
while (count < 10)
  count++;
cout << "Hello";
```

the output statement that prints "Hello" is not part of the body of the loop.

   A. True

   B. False

2. (5 points) True or False? It is possible for the body of a "while" statement never to be executed.

   A. True

   B. False

3. (5 points) True or False? The termination condition for the While loop (Be careful here)

```
while (loopCount < 19)
{
  cout << loopCount << endl;
  loopCount++;
}
```

is `loopCount > 19.`

   A. True

   B. False

4. (5 points) Write a loop that sums the numbers between 2 and 22 inclusive.

5. (5 points) Write a loop expression that makes the loop continue as long as count is not equal to 20 and stop is false. (Note: "count" is an int variable and "stop" is a boolean variable)

6. (5 points) What is the value of someInt after control exits the following loop?

```
someInt = 20;
while (someInt > 13)
  someInt = someInt - 3;
```

7. (5 points) In the following code fragment, a semicolon appears at the end of the line containing the While condition.

```
cout << 'A';
loopCount = 1;
while (loopCount <= 2);
{
  cout << 'B';
  loopCount++;
}
cout << 'C';
```

The result will be:

A. the output AC

B. the output ABBC

C. the output ABBBC

D. a compile-time error

E. an infinite loop

8. (5 points) What is the output of the following code fragment? (finished is a bool variable, and firstInt and secondInt are of type int.)

```
finished = false;
firstInt = 3;
secondInt = 20;
while (firstInt <= secondInt && !finished)
  if (secondInt / firstInt <= 2) // Reminder: integer division
    finished = true;
  else
    firstInt++;
cout << firstInt << endl;
```

A. 3

B. 5

C. 9

D. 8

E. 7

9. (5 points) With respect to the loop in the following main function, what is missing?

```
int main()
{
  int loopCount;

  while (loopCount <= 8)
  {
     cout << "Hi";
     loopCount++;
  }
  return 0;
}
```

   A. the initialization of the loop control variable
   B. the testing of the loop control variable
   C. the incrementation of the loop control variable
   D. Nothing is missing.

10. (5 points) What is the output of the following code fragment? (Be careful here. The code is poorly indented.)

```
n = 2;
while (n <= 5)
  cout << n << ' ';
  n++;
```

   A. 2 3 4 5 6
   B. 1 1 1 forever
   C. 2 2 2 forever
   D. 5 5 5 forever
   E. 2 3 4 5

11. (5 points) What is the termination condition for the following While loop?

```
while (beta > 0 && beta < 10)
{
  cout << beta << endl;
  cin >> beta;
}
```

   A. `beta > 0 && beta < 10`
   B. `beta <= 0 || beta >= 10`
   C. `beta < 0 || beta > 10`
   D. `beta >= 0 && beta <= 10`

12. (5 points) What is the output of the following code fragment? (All variables are of type int.)

```
limit = 8;
cout << 'H';
loopCount = 10;

while (loopCount <= limit){
  cout << 'E';
  loopCount++;
}

cout << "LP";
```

13. (5 points) Write a program using nested while loop to print out a 5 X 10 matrix with all zeros.

```
0000000000
0000000000
0000000000
0000000000
0000000000
```

14. (5 points) Write a program using nested while loop to print out "square" matrix of any size with 1s on either diagonal and zeros in the rest.

    Pattern 1

```
1 0 0 0 0 0 0 0 0 0
0 1 0 0 0 0 0 0 0 0
0 0 1 0 0 0 0 0 0 0
0 0 0 1 0 0 0 0 0 0
0 0 0 0 1 0 0 0 0 0
0 0 0 0 0 1 0 0 0 0
0 0 0 0 0 0 1 0 0 0
0 0 0 0 0 0 0 1 0 0
0 0 0 0 0 0 0 0 1 0
0 0 0 0 0 0 0 0 0 1
```

    Pattern 2

```
 0 0 0 0 0 0 0 0 0 0 0 0 0 1
 0 0 0 0 0 0 0 0 0 0 0 0 1 0
 0 0 0 0 0 0 0 0 0 0 0 1 0 0
 0 0 0 0 0 0 0 0 0 0 1 0 0 0
 0 0 0 0 0 0 0 0 0 1 0 0 0 0
 0 0 0 0 0 0 0 0 1 0 0 0 0 0
 0 0 0 0 0 0 0 1 0 0 0 0 0 0
 0 0 0 0 0 0 1 0 0 0 0 0 0 0
 0 0 0 0 0 1 0 0 0 0 0 0 0 0
 0 0 0 0 1 0 0 0 0 0 0 0 0 0
 0 0 0 1 0 0 0 0 0 0 0 0 0 0
 0 0 1 0 0 0 0 0 0 0 0 0 0 0
```

```
0 1 0 0 0 0 0 0 0 0 0 0 0
1 0 0 0 0 0 0 0 0 0 0 0 0
```