**Java**

Loops Quiz\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**DIRECTIONS: Answer all questions without a compiler. Type your answers in RED.**

**1)** Explain each part of the following loop, and describe the result of running it.

for(int i = 0; i <= 10; i++){

System.out.println(i);

}

**HEADING:**

**BODY:**

**RESULT:**

**2)** Explain each part of the following loop, and describe the result of running it.

int a = 1, b = 0;

double c = -1;

while(input >= 0){

a = sc.nextInt();

c ++;

b += a;

}

b -= a;

System.out.print(b / c);

**HEADING:**

**AFTER LOOP:**

**BODY:**

**RESULT:**

**BEFORE LOOP:**

**3)** The following code segments may contain logical errors. If it does, describe what the code actually does, and write how you would change it to get the desired output.

// should print: 1 2 3 4 5 6 7 8 9

int a = 1;

while(a < 10){

a++;

System.out.print(a + " ");

}

**This is what the code does:**

**This is how I would change it:**

// should print: 1 2 4 8 16 32 64

for(int i = 0; i < 7; i++){

System.out.print(i + " ");

}

**This is what the code does:**

**This is how I would change it:**

**For numbers 4 - 6 you can assume you are wrting in the main method, and a Scanner called sc has already been declared and initialized to read from the console.**

**4)** Write a program that asks the user to enter a terminating integer, then continue to enter ints until they enter the terminating integer again. Print out the sum, average, minimum, and maximum of all of the integers except the two terminating integers.

This is what your program should look like:

Enter a terminating integer: -35

Enter an int: 4

Enter an int: 2

Enter an int: 1

Enter an int: 3

Enter an int: -35

Sum is 10

Average is 2.5

Minimum is 1

Maximum is 4

**5)** Write a program that asks the user to enter their two favorite words. Then ask them to enter their favorite letter. Print out the number of times the user's favorite letter appears in their favorite words. The user may use capital or lowercase letters.

This is what your program should look like:

Enter your first favorite word: Banana

Enter your second favortite word: Cannon

Enter your favorite letter: n

The letter N appears 5 times in your favorite words.

**6)** Write a program that asks the user to enter a starting integer and an ending integer. Print out all of the prime numbers between those two integers. Assume the user follows your directions and enters a smaller number first.

**In case you forgot:** n is a prime number if it is an integer whos only divisors are 1 and n.

This is what your program should look like:

Enter a starting number: 11

Enter an ending number: 80

These are all of the prime numbers between 10 and 80:

11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79

**For numbers 7 - 12 Use the following code segment to decide if the statements are true or false. Breifly explain how you know.**

String word1 = "Hello";

String word2 = "Hello";

String word3 = "Goodbye";

String s1 = new String("Orange");

String s2 = new String("Orange");

String s3 = sc.next(); // Assume the user types in "Hello"

**7)** word1 == word2

**8)** s1 == s2

**9)** word1.equals(word2)

**10)** s1.equals(s2)

**11)** word1 == word3

**12)** word1 == s3