CSCI 001 **Midterm Exam**
Fall 2019 Programming using C++ Name Solutions

Part II: (*Write your answer in the provided box... 30 points*)

1. What is the output?

```
int a = 5, b = 3, c = 2;
bool d = (a < 10 || b > 0);

a = (a + b + c) / 3;
b = b % c;
c++;

cout << "a\t b\t c\t d\t" << endl;
cout << a << "\t" << b << "\t" << c << "\t" << d << endl;
```

a	b	c	d
3	1	3	1

2. What is the output?

```
int x = 1;

do {
      if (x % 2 == 0)
            cout << x << endl;
      x++;
} while (x < 13);

cout << "\nFinally x = " << x << endl;
```

2
4
6
8
10
12
Finally x = 13

3. What is the output?

```
int hours = 50;
double salary, rate = 12;

if (hours <= 40)
      salary = hours * rate;
else {
      salary = 40 * rate;
      if (hours <= 50)
            salary = salary + (hours - 40)*rate*1.5;
      else
            salary = salary + 10*rate*1.5 + (hours - 50)*rate*2;
}

cout << "pay = $" << salary << endl;
```

Pay = $660

480 + 10·12·1.5
480 + 120·1.5
480 + 180
660

4. What is the output?

```
int sum = 0;
for (int i = 0; i < 6; i++) {

      sum = sum + i;
      cout << "sum = " << sum << endl;

}
```

sum = 0
Sum = 1
Sum = 3
Sum = 6
Sum = 10
Sum = 15

5. Given the function, what is the output:

```
      int i = 6;

      while (i != 0) {
            cout << getWord(i) << "\t";
            i = i - 2;
      }
```

C++ Joy Brings

Given**********

```
string getWord(int n) {

      if (n == 0)
            return("Labs");
      else if (n == 1)
            return("Sleep");
      else if (n == 2)
            return("Brings");
      else if (n == 3)
            return("Ugly");
      else if (n == 4)
            return("Joy");
      else
            return("C++");

}
```

6. Write a C++ function **by hand** that models the mathematical function $f(x) = 2x^3 - x + 5$ **without** using the <cmath> library.

```
double function (double x){

    return 2*x*x*x - x + 5;

}
```