Engr 123 **Name_____**
Hour Exam 1 **February 3, 2016**

1. If i = 12, j = 3, and k = 4, determine whether each of the following is TRUE or FALSE.

A) `(!(!(j > i)||(k < 4)))` _____

B) `((i + 2/3) > (k – 1))` _____

2. If i, j, and k are integers and i = 9 and j = 22 what does the following print?

```
k = i++ - ++j/2 + 4/3;
Console.WriteLine("i = {0}, j = {1}, k = {2}", i, j, k);
```

_____

3. Show what is printed as a result of each of the following: (all variables have been declared to be of type *int*.

A)
```
a = 23;
b = 3;
c = a/b + 4.7;
Console.Write(c);
```
Printed Result_____

B)
```
a = 12;
  b = 5;
  c = a/b*(2+b);
  Console.Write(c);
```
Printed Result_____

C)
```
a = 11;
  b = 4;
  Console.Write(a % b % 2);
```
Printed Result_____

4. Given that a, b, and t are integers with a = 2, b = 12, and t = 36 what is the value for these three variables after the following C# sequence is executed.

```
t = a;
a = b;
b = t;
```

a = _____ b = _____ t = _____

5. How many line of print do each of the following produce? The variables i, j, and k are integers.

A)
```
i = 12;
while(i > -2)
 {Console.WriteLine(i);
  i--;
 }
while(i < 5)
  {Console.WriteLine(i);
   i++;
  }
```
Lines of Print _____

B)
```
int i, j, k;
   i = 0;
   while(i <= 14)
    {j = 0
     while(j < 10)
      {k = 0;
       while(k < 15)
         {Console.WriteLine(k);
          k++;
         }
       j++;
      }
     i++;
    }
```
Lines of Print_____

6. Answer the questions below about the following program:

A) If the input is 6 what is printed?

_____

B) If the input is 9 what is printed ?

_____

C) If the input is 2 what is printed?

_____

```
int i;
Console.Write("Enter an int... );
i = Convert.ToInt32(Console.ReadLine());
if(i < 7)
   if(i > 4)
     Console.Write(i+1);
else
   Console.Write(i+2);
Console.WriteLine(i);
```

7. Fill in the memory map and show what is printed by the following program.

```
static void Main(string[] args)
  {int i, j;
   i = 5;
   j = 22;
   Console.Write(i);
   Console.WriteLine(j);
   First(i, j);
   Console.Write(i);
   Console.WriteLine(j);
  }
private static void First(int j, int i)
  {int k;
   k = 12;
   Console.Write(i);
   Console.WriteLine(j);
   k = Second(i, j);
   Console.WriteLine(k);
   Console.Write(i);
   Console.WriteLine(j);
  }
private static int Second(int j, int i)
  {int k;
   k = 5;
   Console.Write(i);
   Console.WriteLine(j);
   k = k + i + j*2;
   return k;
  }
```

Memory			
M2	**M1**	**Main**	**Data**

Printed Results

_____

_____

_____

_____

_____

_____

_____

8. Write a C# program to print the powers of 2 as integers from 2^0 to 2^{16} on successive lines.

9. Write a *method* that accepts a single int argument and returns an int which is +1 if the int is even and -1 if the int is odd. A main program segment which calls your method is shown below.

```
{int x;
 Console.Write("Enter an int... ");
 x = Convert.ToInt32(Console.ReadLine());
 if(EvenOdd(x) == 1)
   Console.WriteLine("x is even");
 else
   Console.WriteLine("x is odd");
}
```

Put your method here:

10. Given a method definition below. Write a main program which will evaluate this function beginning at x = 0 and continuing until the value of the method exceeds 1000. Increment x in steps of 0.1. Your main program should print *only* the first value of x for which the method is greater than 1000.

```
double F(double x)
 {double y = 0;
  double pi = 3.1415926;
  if (x < 0)
    y  = -1;
  else
    y = x*x*x*sin(x*pi/180);
  return y;
 }
```

11. Given below is a method declaration and a comment line which tells what the method does. Write the method.

```
double AddThree(int a);
//If the argument is positive, this function returns the argument plus
//   three.  If the argument is zero it returns -1, otherwise, it returns
//   the argument divided by 3.
```