June 2nd, 2015 Quiz 3

Total Score ______. Your work is to be done individually. The quiz is worth 50 points and it has 8 questions. Unless a problem directly instructs you differently, there are no known errors within this document. All programming solutions will be implemented in the C programming language. You only need to write the fragment of code that directly answers each question. Unless otherwise specified you do not have to write a full program for any of the questions.

1. [16 pts] Given this code fragment step through the code and state the output created. (i.e. what is printed to the console) and the final value of each variable.
   int x = 10, y = 5, n = -5;
   for (n = 15; n > 0; n -= 3) {
      switch(n % 5) {
         case 0:
            printf("colorless "); x *= 2;
            break;
         case 1:
            printf("sleep "); y /= 3;
            break;
         case 2:
            printf("green "); y = x +1;
            break;
         case 3:
            printf("furiously "); x = 0;
            break;
         case 4:
            printf("ideas "); y = n;
            break;
         default:
            x = n * 5 + y++ * 2;
            printf("\n- Noam Chomsky\n");
      }
   }

   Output (10 pts)  Variables (6 pts)
   colorless green ideas sleep furiously  x = 0
                                    y = 3
                                    n = 0

2. [5 pts] Declare a 5 integer array and initialize its elements to contain the number of their index in the array.
   int myArray[5] = {0,1,2,3,4};
3. [9pts] Given this code fragment step through the code and state the output created. (i.e. what is printed to the console) and the final value of each variable.

```
int x = 1;
x *= 1;
printf("%d\n", x);
x *= 2;
printf("%d\n", x);
x *= 3;
printf("%d\n", x);
x *= 4;
printf("%d\n", x);
```

<table>
<thead>
<tr>
<th>Output (8pts)</th>
<th>Variable (1pts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>x = 24</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

4. [10pts] Using a loop remove the repetition of statements in the previous problem and still print the same output.

```
int x = 1;
int i;
for(i = 1; i <= 4; i++) {
x *= i;
printf("%d\n", x);
}
```

5. [10pts] Create a for loop that prints each of the powers of 3 starting at 1 (i.e. $3^0$) through 3 to the power 10.

```
int power = 1, i;
for(i = 0; i <= 10; i++) {
    printf("%d\n", power);
    power *= 3;
}
```