CS302 Data Structures

Spring 2010 – Dr. George Bebis

Homework 1

Due Date: 2/2/2010

1. Given the function definition

```
void Twist(int a, int& b)
{
 int c;

 c = a + 2;
 a = a * 3;
 b = c + a;
}
```

what is the output of the following code fragment that invokes *Twist*? (assume that all variables are of type *int*). Justify your answer.

.

```
r = 1;
s = 2;
t = 3;
Twist(t, s);
cout << r << ' ' << s << '  ' << t << endl;
```

2. (a) When passing a static 2D array to a function, the number of columns must be specified in the function prototype and function heading. Carefully explain why. (b) Give the C++ statements for the dynamic allocation of an array A with 3 rows and 5 columns. Draw a diagram that illustrates the structure of the dynamic array in memory. Carefully explain how the system would find the address of element A[i][j] using the pointer structure associated with the array.

3. Exercise 18 (page 188)

4. Exercise 19 (page 188)