**CS121 Homework – Pointers and 2-D Arrays**

1. (20 Points) Show the contents of the memory locations following execution of the following code:

int m = 44, n, s;

int \*p ;

int \*q;

int array[5] = {0};

p = &m;

q = &n;

\*q = 22;

s = \*q + \*p;

array[1] = 5;

\*array = 1;

\*(array + 4) = 3;

r = \*(++array);

**Problems 2 – 4 (30 points)**

2. (2 points) True or false?

***a.*** If (x == y) then (&x == &y). T F

***b.*** If (x == y) then (\*x == \*y). T F

Explain:

1. (8 points) What is wrong with the following code?
2. int\* p = &44;
3. char c = 'w';

 char p = &c;

1. char c = 'w';

char\* p = c;

1. float x = 3.14159;

float\* p = &x;

int d = 44;

int\* q = &d;

p = q;

1. (20 points) If p and q are pointers to int and n is an int, which of the following are legal:

a. p + q; Legal Not Legal

b. p – q; Legal Not Legal

c. p + n; Legal Not Legal

d. p – n; Legal Not Legal

e. n + p; Legal Not Legal

f.n – q; Legal Not Legal
g. n++; Legal Not Legal
h. p++; Legal Not Legal
i. &q; Legal Not Legal
j. \*p + n; Legal Not Legal

**Programming Assignment**

1. (50 points) Given the word find puzzle below locate and print out all four letter words. The words can appear in their normal form or reversed and both horizontal or vertical. (no diagonal words) Use a two dimensional char array to hold the puzzle. Process one line at a time. And then one column at a time. You should have a function that determines if a sequence of letters constitutes a word. You may want to use the binary search algorithm to search the dictionary of four letter words. The following puzzle contains ten lines with ten letters in each line. **You may use lowercase if you prefer.**

**SXABRAGEGS
AESORLATEL
MOONECENTA
ERLLABLLAT
MTSOLALEAF
DLTAAIKICK
UTINLTCEDC
OUUAAKTSUD
LXQUETEKAC
DATASETLAS**