**Systems and PDC: Game 1**

**Name**

Do not use your book or the Internet or another student. If you have questions, you can ask Richard.

1. [2] pointers (the following code will not compile, but assume it were written so that it did)

int x = 5  
int y = 7  
int \*ptr1 = &x  
int \*ptr2 = ptr1  
ptr1 = &y;  
what is the value of \*ptr2? You must give some brief explanation for your answer

The value of \*ptr2 is 5. \*ptr1 = &x points to the address of x.

1. [2] Arrays. Allocate an array of structs  
   struct t {  
   char \*name;  
   int age;};  
   struct t \*ts = malloc(100 \* sizeof(struct t));  
   which is correct, a or b?  
   (a) ts[10].age = 19;  
   (b) ts[10]->age = 19;  
   explain briefly why you chose the one you did?

b. In a struct \* type we have to use -> in order to set a value.

1. [1] Where does malloc allocate space?  
   The heap.
2. [2] Game of Life. Why might you use the following code in your implementation  
   int \*\*tmp;

tmp = board1;  
board1 = board2;  
board2 = tmp;

why don’t you need to allocate a 2D array for tmp?

A int \*\* already needs 2 variables so you will be having rows and columns of pointers.

1. [2] explain (void \*)  
   It’s an easier way to point to a variable of any type?