Name: _____ SS#: _____ Section: _____

CMSC 201H, CMSC 201 sections 101 & 102 Computer Science I
December 3, 1993 Quiz 3

True or False Questions

1 point each. Circle True or False after each question:

1. In C, there is no difference between an array and a pointer to an array.

   TRUE FALSE

2. In the class library, the type `string` is equivalent to a pointer to `char`.

   TRUE FALSE

3. In C, an array with ten elements is indexed from 1 through 10.

   TRUE FALSE

4. In C, when an array is passed to a function, only the address of the array is passed to the function.

   TRUE FALSE

5. In C, a parameter is passed by reference when the address of a variable is passed to the function.

   TRUE FALSE

6. The declaration:

   ```
   typedef int *int_ptr ;
   ```

   creates a variable called `int_ptr` which can hold the addresses of integers.

   TRUE FALSE

Multiple Choice

2 points each. Select the best answer.

1. Let `p` be a pointer to an integer and `i` be an integer variable. Which of the following is *not* a correct assignment?

   (a) `p = &i ;`

   (b) `p = p + 1 ;`

   (c) `p = 1023 ;`

   (d) `p = 0 ;`

2. To store the string `"Hello World"` you need to allocate:

   (a) 9 bytes of memory

   (b) 10 bytes of memory

   (c) 11 bytes of memory

   (d) 12 bytes of memory

3. The term "virtual memory" refers to

   (a) off-line storage for a virtual reality applications.

   (b) using disk space to extend the amount of memory available to the system.

   (c) read-only memory (ROM).

   (d) a theoretical model of memory with infinitesimally small response times.

4. A segmentation fault occurs when:

   (a) a program using pointers does not compile.

   (b) a program using strings does not compile.

   (c) a program tries to access a memory location forbidden by the operating system.

   (d) a program tries to access a variable declared in a separate file.

Short Answers

4 points each. There are no intentional syntax errors in this section.

1. What is the output of the following program?

```
main () {
   char *p ;
   string str ;

   str = "Hello World\n" ;
   p = str ;
   p++ ;
   *p = 'o' ;
   p++ ;
   *p = 'o' ;
   p++ ;
   *p = 'o' ;
   printf("%s", str) ;
}
```

2. What is the output of the following program?

```
main() {
int a, b, c, *p, *q ;

   a = 4 ;
   b = 9 ;
   p = &a ;
   q = &b ;

   *p = *q * 3 ;
   p = &b ;
   *q = *p + 2 ;
   printf("%d %d %d %d\n", a, b, *p, *q);
}
```

3. What is the output of the following program?

```
/* Global variables */
int a, b, c ;

int f(int d) {
   int a ;

   a = 3 * c ;
   b = b + d ;
   printf("a = %d, b = %d, c = %d, d= %d\n", a, b, c, d) ;
return(a) ;
}

main() {
  int a ;

  a = 1 ;
  b = 2 ;
  c = 3 ;
  c = f(b) ;
  printf("a = %d, b = %d, c = %d\n", a, b, c) ;
}
```

4. What is the output of the following program?

```
void f (int a, int *p) {

   *p = 5 * a ;
   printf("f: %d %d\n", a, *p) ;
}

main() {
   int x, y;

   x = 4 ;
   y = 10 ;
   f(x, &x) ;
   printf("main: %d %d\n", x, y) ;
   f(x, &y) ;
   printf("main: %d %d\n", x, y) ;
}
```