Name: _____ SS#: _____ Section: _____

CMSC 201H, CMSC 201 sections 101 & 102 Computer Science I
October 21, 1993 Quiz 2

True or False Questions

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

1. Every for loop can be re-written as a while loop and vice versa.

   TRUE FALSE

2. In a switch statement, if there is no break statement at the end of a case, then the statements of the following case are also executed.

   TRUE FALSE

3. IN ANSI C, every function returns a value of some specified type.

   TRUE FALSE

4. In ANSI C, every function should be declared before it is used.

   TRUE FALSE

5. In ANSI C, every function must have a return statement.

   TRUE FALSE

6. When a function is called, the type of the actual parameter should be the same as the type of the formal parameter.

   TRUE FALSE

7. When a function is called, the values of its local variables are initiliazed to be zero.

   TRUE FALSE

8. When a function makes changes to its local variables, the values of the correspoding variables in the main function are also changed.

   TRUE FALSE

Multiple Choice

2 points each. Select the best answer.

1. What is the effect of the following code?

```
int i ;

i = 0 ;
while ( i < 10 )
   ;
printf("i = %d\n", i) ;
i++ ;
```

   (a) It prints out the numbers from 0 to 9.
   (b) It prints out the numbers from 0 to 10.
   (c) It prints out the numbers from 1 to 10.
   (d) It will result in an infinite loop.

2. What is the effect of the following code?

```
int i, total ;

total = 0 ;
for (i = 1 ; i <= 5 ; i++) {
   total = total + i ;
}
printf("%d\n", total) ;
```

   (a) It prints out the numbers from 1 to 5.
   (b) It adds the numbers from 1 to 4 and prints the sum.
   (c) It adds the numbers from 1 to 5 and prints the sum.
   (d) It will result in an infinite loop.

3. Given the function prototype:

```
int f (int a);
```

   which of the following is *not* a correct function call, assuming `n` is an integer variable?

   (a) `n = f(n+1) ;`
   (b) `n = f(10.0) ;`
   (c) `n = f(29) ;`
   (d) `f(20) ;`

4. Program execution always begins with

   (a) the first function in the program.
   (b) the last function in the program.
   (c) the function `main`.
   (d) a function specified in the header file.

5. Given the function prototype:

```
int f (void) ;
```

which of the following correctly invokes the function `f`, assuming that `n` is an integer variable?

(a) `n = f(10) ;`

(b) `n = (int) f ;`

(c) `n = f(void) ;`

(d) `n = f() ;`

6. Which of the following is a bad place to put function prototypes.

(a) at the beginning of the program.

(b) after the `#include` and `#define` directives.

(c) in a separate `.h` header file.

(d) at the end of a program.

7. A function call *cannot* be made

(a) within an expression.

(b) as an actual parameter of another function.

(c) as a formal parameter of another function.

(d) as a statement inside another function.

Short Answers

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

1. Write a short for loop which prints out the following sequence:

   23, 20, 17, 14, 11, 8, 5, 2

2. What is the output of the following code?

   Make sure you place the carriage returns in the correct places.

```
int i, j ;

for (i = 0 ; i < 3 ; i++) {
   for (j = 0 ; j < 3 ; j++) {
      if ( (i + j) % 3 == 1 ) {
         printf("O") ;
      } else {
         printf("X") ;
      }
   }
   printf("\n") ;
}
```

3. What is the output of the following program?

```
#include<stdio.h>
int f (int n) ;

main() {
   printf("%d %d\n", f(1), f(f(3)) ) ;
}

int f (int n) {
   return ( 3 * n - 3 ) ;
}
```

4. What is the output of the following program?

```
#include<stdio.h>
int f (int a) ;
int g (int b) ;

main() {
   int a, b, c ;

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

int f(int a) {
   int b ;

   a = a + 3 ;
   b = 2 * a ;
   printf("b = %d\n", b) ;
   return(b) ;
}

int g(int b) {
   int a, c ;

   a  = 5 * b ;
   c = f(a) ;
   printf("a = %d, c = %d\n", a, c) ;
   return(c) ;
}
```