York University
Faculty Science and Engineering
Fall 2008

CSE2031   **Midterm**   **Software Tools**

Tuesday, Oct. 28th 2008   1:00 - 2:15pm

Last Name _____   First name _____

ID _____

Instructions to students:

Answer all questions.

Marks are shown in front of each question number.

Show your work

Be neat and clean while drawing your logic, block, or state diagrams.

This examination consists of **SIX** questions

Problem	Points
1	/2
2	/8
3	/5
4	/10
5	/6
6	/10
Total	/41

Question 1 (2 points)

What does the function string_funct do?

```c
int string_funct( const char *string ) {
int i = 0;
while( string[i] != '\0' ) i++;
return i;
 }
```

Question 2 (8 points)

The use of the scanf() function normally requires that we use the address operator (&). Why is this not required when we input a string with a statement scanf("%s", string_name);

The left to right associativity of the binary minus operator (-) means that
i - j - k is evaluated as (i - (j - k))

True   False

Each *case* in a switch statement should end with a break or continue statement.

True   False

```
char greeting1[10] = {'H', 'i', '\0'};
char *greeting2 = "Howdy";
int length = 0;
strcpy(greeting1,greeting2);
length = strlen(greeting1);
```

What is the value of length immediately after the above statements are executed?
    a) 2
    b) 3
    c) 5
    d) None of the above. Memory has not been properly allocated; so a segmentation fault will occur.

Problem 3 (5 points)

What is the output of the following 2 code segments

```c
#include <stdio.h>
int main(void) {
int k, sum;
for(sum = 0, k = 1; k <= 2; sum -= k, k +=1);
printf("%d\n", sum);
return 0;
}
```

```c
int i, j, *ip;
i=1;
ip=&i;
j=*ip;
*ip=0;
printf("The value of i %d\n", i);
printf("The value of j %d\n", j);
```

Insert parenthesis in the following expression to show the order of execution

5 % 3 * + 2 − 4.5 / 7 * 2 + 2.4

Problem 4 (10 points)

Write function that accepts an integer n, and return an integer which is
Fibonacci(n), where
Fibonacci(n) = Fibonacci(n-1) + Fibonacci(n-2)
Fibonacci(1)= 1 and Fibonacci(0) =0;

Problem 5 (6 Points)

What is the value of the following expression? Give two digits after the decimal point for real numbers.

int a = 3; float b = 1.2; double c = 0.4;

b = 25 % a – b;	Answer: b =	
b = a = 3.2 / c - 2.5;	Answer: a =	b =
c = (int) 2.8 / 0.5 + 12;	Answer: c =	

Rewrite the following code using "switch" statement

```
int day;
scanf("%d", &day);
        if (day < 0 || day >= 7)
                printf("Not a valid day.\n");
        else {
                if (day = = 1 || day = = 3)
                        printf("Recitation day.\n");
                else {
                        if (day = = 2 || day = = 4)
                                printf("Lecture day.\n");
                        else
                                printf("No Class.\n");
                }
        }
```

Problem 6 (10 Points)

Write a complete C program that prompts the user to enter 10 integers and prints out which number is the largest and what is the value of the largest number.

For example, on input *2, 3, 5, 19, 54, 4, 12, -37, 89, -10*, the output will be *9:89*