C335 Homework #4

Points: : 40 points
Due Date: : Mar. 10th

Submissions: : Hardcopy (please type or write your solution clearly)

PART I (4 POINTS)

Find the MIPS assembly instruction represented by each number.

PART II (6 POINTS)

Implement the following C code in MIPS assembly language, assuming that *compare* is the first function called:

```
int compare (int a, int b) {
     if (sub(a, b) >= 0)
         return 1;
     else
         return 0;
}
int sub (int a, int b) {
        Return a-b;
}
```

PART III (8 POINTS)

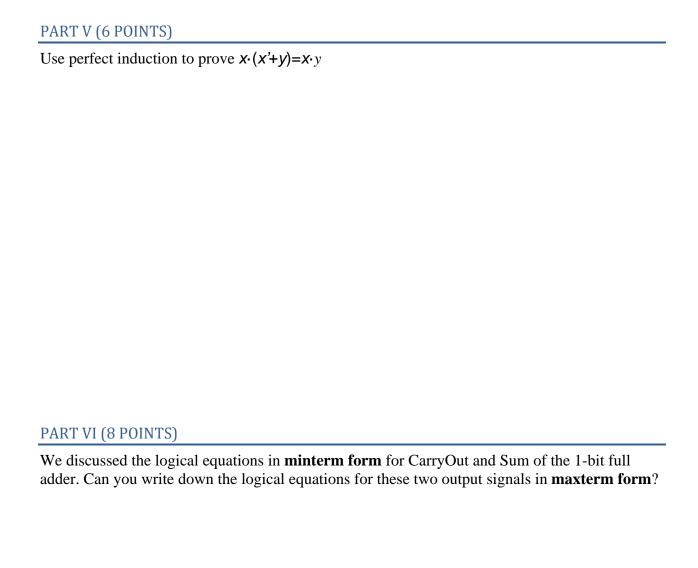
Draw the truth table and the logic circuit for the following function $F = A' \cdot B' + A \cdot B$

(Note, for the logic circuit part, you could draw it by hand)

PART IV (8 POINTS)

Draw the truth table and the logic circuit for the following function $F = (A + B) \cdot (A' + C')$

(Note, for the logic circuit part, you could draw it by hand)



PART VII (BONUS 5 POINTS)

The following is a C code segment doing bubble sorting on an integer array:

```
for (i = 0; i < n - 1; i ++)
{
    for (j = 0; j < n - i -1; j ++)
    {
        If (array[j] > array[j+1]
        {
            temp = array[j];
            array[j] = array[j+1];
            array[j+1] = temp;
        }
    }
}
```

Compile this code segment into MIPS assembly language, assume integer variable n is in \$s0, integer variable i is in \$s1, integer variable j is in \$s2,the base address of integer array array is in \$s3.