St. Number: …………………….. Name: …………………………………………

Q1) [30points] Note the following MIPS instructions formats:

Inst. Type	31-26	25-21	20-16	15-11	10-6	5-0
R	op= 0	rs	rt	rd	shamt	func
I	op= 1, 4-62	rs	rt	Immediate		
J	op= 2, 3	target address				

a) Give the machine code (in Hexadecimal) and the C++ implementations for the following MIPS command:

or $v0,$0,$0

……………………………….

……………………………….

b) Write the MIPS and the C++ implementations for the following machine command:

$20A5000F_{16}$

……………………………….

……………………………….

b) Write the MIPS implementations of the following C++ statement:

v0 += a0++;

……………………………….

……………………………….

Q2) [30pts] Consider the following statement:

a1[t0++]=a0[t0];

write down the corresponding compiled MIPS assembly code. Assuming that the complier associates the base of arrays a0 and a1 with the register $a0 and $a1, and the variable t0 with the register $t0.

....

....

....

....

....

....

Q3) [40pts] For the procedure given below, write down the corresponding compiled MIPS assembly code. The values of the a0, a1, and a2 variables are passed through $a0, $a1, and $a2 registers, respectively. The result should be returned in register $v0. Use registers $s0 for the variable s0. Write all necessary instruction.

int func1(int a0, int a1, int a2)	....
{	....
int s0;	....
if(a0 = = a1)	....
s0=a0+a1;	....
else if (a0 = = a2)	....
s0=a0+a2;	....
else	....
s0=a0;	....
return s0;	....
}	....
	....
	....