

Homework 1: ENEE350 Spring 2007

Q1) Write the MIPS assembly code for the following C code

```
If (I < J) then
    {
        for (k = 0; k < 10; k++)
        {
            A[k] = -A[k];
        }
    }
else
    I = I + J;
```

You can assume that I,J and A(address for array A) are in registers s0,s1,s2. You can also assume that each data element in the array A is 4 bytes long.

Q2) Write the MIPS sequence of instructions for the following C code

```
While ( b >= c)
{
    b = b -c;
}
```

Assume that b,c are in registers s0,s1. Which mathematical operation does this code implement.

Q3) Given a 32 bit binary sequence $a_{31}a_{30} \dots a_2a_1a_0$ in a register say s0. I would like to extract the sequence $a_i \dots a_j$ (with $i > j$, $0 < i \leq 32$, $0 \leq j < 32$) and place them in the least significant bits of another register say t0. Write the sequence of MIPS instructions that allows one to do that. Also assume that i is available in register s1 and j is s2.

Q4) Give the advantages and disadvantages of having a very big register file as opposed to having a smaller one.