1.

What are the differences between RISC and CISC? What are some of the advantages and disadvantages?

2.

Translate the following x86 instructions into MIPS:

a.

add 0x200(,%rdx,4),%rcx

b.

lea 0xc(%rdi),%rax

c.

mov 0x30(%rsp,%rbx,4),%rax

d.

mov %rcx,-0x30(%rsp,%rdx,4)

3.

Translate the x86 code into MIPS. Assume variables a,b, and i are in register $s0, $s1, and $t0. Assume a, b, and i are in rdi, rsi, and rdx.

for(i = 0; i < 5; i++) {

a+=b;

}

mov $0, rdx

.loop: cmp $4, rdx

jg leaveloop

add rsi, rdi

add $1, rdx

jmp .loop

4.

What does the following MIPS code snippet do?

Loop: lw $t0, 0($s0)

lw $t1, 0($t0)

add $t1, $s1, $t1

sw $t1, 0($t0)

addi $s0, $s0, 4

bne $s0, $s2, Loop

5.

When does False Sharing occur, and how does it affect performance when parallelizing?