

Name :

St. ID:

CSE340 Quiz 1
Spring 24

1. Suppose a multiplication operation takes 120 seconds in total and among that 17% are serial operations and the rest are parallel operations. If you want to improve the performance by 2.56 times, what improvement do you need to include in the system's parallel operation? (6)
2. `sd x9, 240(x10)` => What's the risc v machine language for this instruction? (6)
3. What is the corresponding C/Python statement? Assume that the variables f, g, h, i, and j are assigned to registers x5, x6, x7, x28, and x29, respectively. Assume that the base address of the arrays A and B are in registers x10 and x11, respectively. (8)

```
slli x30, x5, 3 // x30 = f*8
add x30, x10, x30 // x30 = &A[f]
slli x31, x6, 3 // x31 = g*8
add x31, x11, x31 // x31 = &B[g]
ld x5, 0(x30) // f = A[f]
addi x12, x30, 8
ld x30, 0(x12)
add x30, x30, x5
sd x30, 0(x31)
```