Problem 1. “Compiler Appreciation” [30 points]

(A) #assume address of y in $t3
   lw $t0, x
   lw $t1, f
   mul $t2, $t1, $t0
   addi $t2, $t2, -1
   sw $t2, $t3

(B) #assume memory
   0: row
   4: col
   8: dst
   1000: src
   lw $t0, row
   lw $t1, col
   multi $t2, $t0, 32
   add $t3, $t2, $t1
   lw $t4, 1000($t3)
   sw $t4, 8($t3)

(C) #assume address of abs in $t1
   lw $t0, x
   slti $t2, $t0, 1
   beq $t2, $zero, end
   sub $t3, $zero, $t0
   move $t0, $t3
   end:
   sw $t0, $t1

(D) #assume memory
   0: j
   4: n
   8: a
   lw $t0, j
   sw $zero, $t0
lw $t1, n

while:
    slt $t4, $t0, $t1
    beq $t4, $zero, end
    multi $t2, $t0, 2
    addi $t3, $t2, 1
    la $t2, a
    sw $t3, $t0($t2)
    addi $t0, $t0, 1
    j while

end:

(E) #assume memory
    0: x
    4: a

    #assume $t2=4
    lw $t0, x
    lw $t1, $t0($t2)  #a[x]
    lw $t3, $t1($t2)  #a[a[x]]
    lw $t3, $t3($t2)  #a[a[a[x]]]
    sw $t3, $t1($t2)  #a[a[x]]=a[a[a[x]]]

**Problem 2. “Faking It” [30 points]**

(A) addu rA, rB, $zero (not unique)
(B) sub rA, $zero, rB (not unique)
(C) nor rA, rB, $zero (not unique)
(D) sltiu rA, rB, 1 (unique)
(E) slti rd, rs, 1 (unique)
Problem 3. “MIPS Datapath” [40 points]

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