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1a) Value of 5 labels in the program

Label main: 0x00400100  
Label num: 0x10010008  
Label func: 0x00400120  
Label end: 0x00400120  
Label top: 0x00400104

1b)

lw \$t1,-4(\$t0)

- Base addressing mode

beq \$s0,\$s2,end

- PC relative addressing mode

lui \$t0,0x1001

- Immediate addressing mode

add \$s0,\$s1,\$t0

- Register addressing mode

andi \$s0,\$0,0xFFFF

- Immediate addressing mode

jal func

- Pseudo direct addressing mode

j top

- Pseudo direct addressing mode

bne \$s0,\$0,top

- PC relative addressing mode

sll \$v0,\$t1,4

- Immediate addressing mode

jr \$ra

- Register addressing mode

1c)

lui \$t0,0x1001  
- 0x3c081001

lw \$t1,-4(\$t0)  
- 0x8d09fffc

jal func  
- 0x0c100008

beq \$s0,\$s2,end  
- 0x12120005

bne \$s0,\$0,top  
- 0x1600fff9

add \$s0,\$s1,\$t0  
- 0x02288020

andi \$s0,\$0,0xFFFF  
- 0x3010ffff

j top  
- 0x081000001

2)

addi \$t1,\$0,14

and \$t2,\$0,\$0

add \$t2,\$t2,\$t1

sll \$t1,\$t1,2

bne \$t1,\$0,label

lui \$t0,0x1001

sw \$t1,0(\$t0)