

PART 1: MIPS Register Tracing (Code Analysis)

Analyze each MIPS code snippet and answer the following:

Code 1

```
asm  
li $t0, 5  
li $t1, 3  
add $t2, $t0, $t1  
sub $t3, $t1, $t0  
move $a0, $t2  
li $v0, 1  
syscall
```

T2=

8

t₀
5

t₁
3

t₂ 8
t₃ -2

Code 2

```
asm  
li $t0, 3  
li $t1, 5  
beq $t0, $t1, else  
sub $t2, $t1, $t0  
out  
else: add $t2, $t1, $t0  
out: move $a0, $t2  
li $v0, 1  
syscall
```

T2=

2

t₀
3

t₁
5

t₂
2

Code 3

```
asm  
li $t0, 2  
li $t1, 4  
bit $t0, $t1, else  
sub $t2, $t1, $t0  
j out  
else: add $t2, $t1, $t0  
out: move $a0, $t2  
li $v0, 1  
syscall
```

What value is printed?

6

t₀
2

t₁
4

t₂
6

Code 4

```
asm
addi $t0, $zero, 10
addi $t1, $zero, 3
div $t0, $t1
mflo $a0
li $v0, 1
syscall
mfhi $a1
li $v0, 1
syscall
```

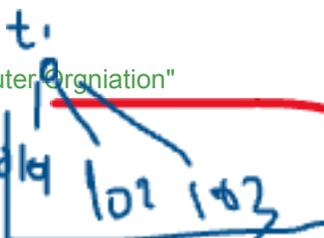
$t_0 = 10$ $t_3 = 3$
 $10/3$

hi

3
10
3

Code 5

```
asm
.data
str: .asciz "Computer Orgniation"
.text
main:
la $t0, str
li $t1, 0
lb $t2, ($t0)
start:
beq $t2, $zero, endloop
add $t1, $t1, 1
add $t0, $t0, 1
lb $t2, ($t0)
j start
endloop:
li $v0, 10
syscall
```



3
Lo
t0
t6
کنوان

t1
t2

T1= 108

PART 2: MIPS Programming

Write complete MIPS assembly code for the following task:

You are given two arrays in the data section:

asm

A: .word 3, 2, 1, 6, 10

B: .word 0:5

Task:

Write a MIPS program that:

1. Loads each element from array A
2. Adds 3 to it
3. Stores the result in the corresponding position in array B

.data

A: .word 3, 2, 1, 6, 10

B: .word 0:5

.text

main:

la \$t0, A

la \$t3, B

li \$t1, 0 # counter

li \$t2, 5 # comparison value

loop:

lw \$t4, 0(\$t0)

addi \$t4, \$t4, 3

sw \$t4, 0(\$t3)

addi \$t1, \$t1, 1

addi \$t0, \$t0, 4

addi \$t3, \$t3, 4

blt \$t1, 5, loop

li \$v0, 10

syscall