

Examen Parcial I - Solución

Problema 1

1. D
2. E
3. B
4. A
5. C

Problema 3

1. E
2. F
3. D
4. B
5. G

Problema 2

(a) The value of f_n at the end of the loop is 8.

(b)

```
.data
f1: .word 0
f2: .word 1
fn: .word 0
n: .word ...
```

```
text
la $t0, n
lw $s5, 0($t0)           // n en s5
la $t0, f1
lw $s1, 0($t0)           // f1 en s1
la $t0, f2
lw $s2, 0($t0)           // f2 en s2
la $t0, fn
lw $s3, 0($t0)           // fn en s3
addi $s4, $zero, 0       // i en s4

loop: bge $s4, $s5, exit
      add $s3, $s2, $s1
      move $s1, $s2
      move $s2, $s3
      j loop

exit:
```

```
// deallocate registers.
la $t0, f0
sw $s0, 0($t0)
la $t0, f1
sw $s1, 0($t0)
la $t0, fn
sw $s3, 0($t0)
```

(c) Easy I version

andi ϕ

storei 1000 $f_1 = \phi$

storei 1004 $f_n = \phi$

storei 1006 $i = \phi$

addi 1

storei 1002

loop: loadi 1008

comp

addi 1

add 1006

brni stay

jumpi exit

stay: loadi 1000

add 1002

loadi 1002

store 1000

loadi 1002

storei 1000

loadi 1004

storei 1002

→ jump loop.

Assume the following
memory layout.

VAR	ADDRESS
f_1	1000
f_2	1002
f_n	1004
i	1006
n	1008