

I hereby pledge that I will strictly adhere to academic integrity codes and the work done on this examination is solely my own and I will not receive/give any help from/to anybody or source during this examination

Q3)

A: lw \$t2, 0, (\$t5)

B: sll \$t3, \$t2, 1

C: andi \$t2, \$t0, 34

D: or \$t0, \$t3, \$t4

E: beq \$t4, \$s2, mandalina

F: add \$s2, \$s3, \$s4

6: Mandalina: addu \$t5, \$t2, \$t3

- a) RAW from A to B, \$t2 // Data hazard
- RAW from B to D, \$t3 // Data hazard
- RAW from E to F, \$s2 // Branch hazard

b) lw \$t2, 0, (\$t5)

nop

nop // If there was forwarding, it will not needed.

sll \$t3, \$t2, 1

andi \$t2, \$t0, 34

nop

or \$t0, \$t3, \$t4

beq \$t4, \$s2, mandalina

nop

nop

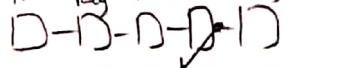
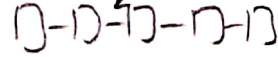
add \$s2, \$s3, \$s4

Mandalina: addu \$t5, \$t2, \$t3

c) lw \$t2, 0(\$t5)

sll \$t3, \$t2, 1

Because, forwarding doesn't

imposed back, IF Reg ALU MEM WB
lw: 
sll: 

d)

beq \$t4, \$s2, mandalina

add \$s2, \$s3, \$s4

