

Quiz-1 Answers:

A(2)-\$a0+8

A(1)=A(2)+A(3)—lb02 13

Int—lw lw

4

True

all 2

lb sb sw

divi—srl 2

char array—\$a0+2

← → × ◌ ⓘ ⓘ

Bonus Quiz II- Requires Respondus LockDown Browser

Started: Oct 31 at 12:28pm

Quiz Instructions

Question 1 1 pts

In a fully-associative cache with two blocks and an LFU replacement policy, initially cache is empty, if we have memory reference sequence: A, B, A, C, then, writing C into the cache will result in the replacement of block A.

Fully-associative cache

Tag	
0	1

True
 False

Questions

- ✓ Question 1
- ② Question 2
- ② Question 3
- ② Question 4
- ② Question 5
- ② Question 6
- ② Question 7
- ② Question 8
- ② Question 9
- ② Question 10

Time Running: Hide Time

19 Minutes, 29 Seconds

Next >

No new data to save. Last checked at 12:28pm

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Quiz Instructions

Question 2 1 pts

Given the program below:

1. `lw $t2, 0($a0)`
2. `add $t1, $t0, $t2`
3. `addi $t0, $t0, 1`

To avoid the pipeline stall, we can reorder the execution of the instructions to:

1. `lw $t2, 0($a0)`
2. `addi $t0, $t0, 1`
3. `add $t1, $t0, $t2`

True

False

Next ▶

Quiz saved at 12:29pm

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Quiz Instructions

Question 3 1 pts

Consider the assembly instructions below. If these instructions are executed on a MIPS processor with a 5-stage pipeline (Fetch, Decode, Execute, Memory, and Writeback) with a forwarding unit.

SUB \$5, \$2, \$1
SW \$5, 4(\$1)
LW \$2, 0(\$2)
SW \$5, 0(\$2)
ADD \$3, \$5, \$2
ADDI \$3, \$5, 2

How many clock cycles are required to execute the code?

6
 10
 4
 12

Questions

- ✓ Question 1
- ✓ Question 2
- ✓ Question 3
- ② Question 4
- ② Question 5
- ② Question 6
- ② Question 7
- ② Question 8

Time Running: 18 Minutes, 46 Seconds

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MacBook Air

Bonus Quiz II- Requires Respondus LockDown Browser
Started: Oct 31 at 12:28pm

Quiz Instructions

Question 4 1 pts

Given the program below:

sub \$2, \$1, \$3
instruction
add \$5, \$2, \$1

Which of the following detection code can help to detect the pipeline hazard in the given program?

if((EX/MEM.RegWrite)&& (EX/MEM.IR[rd]==ID/EX.IR[rs]))
 if((EX/MEM.RegWrite)&& (EX/MEM.IR[rd]==ID/EX.IR[rt]))
 if((MEM/VB.RegWrite)&&(MEM/VB.IR[rd]==ID/EX.IR[rs])&& (EX/MEM.IR[rd]==ID/EX.IR[rs]))
 if((MEM/VB.RegWrite)&&(MEM/VB.IR[rd]==ID/EX.IR[rt])&& (EX/MEM.IR[rd]==ID/EX.IR[rt]))

No new data to save. Last checked at 12:29pm

Questions

- ✓ Question 3
- ✓ Question 4
- ② Question 5
- ② Question 6
- ② Question 7
- ② Question 8
- ② Question 9
- ② Question 10

Time Running: 18 Minutes, 16 Seconds

Next ▶

MacBook Air

Started: Oct 31 at 12:28pm

Bonus Quiz II- Requires Respondus LockDown Browser

Quiz Instructions

Question 5 1 pts

1-way set-associative cache can be called a direct-mapped cache.
1-way set-associative cache can be called a direct-mapped cache.

True
 False

Questions

- ✓ Question 3
- ✓ Question 4
- ✓ Question 5
- ② Question 6
- ② Question 7
- ② Question 8
- ② Question 9
- ② Question 10

Time Running: Hide Time
17 Minutes, 15 Seconds

Next >

No new data to save. Last checked at 12:31pm

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MacBook Air

QUIZ INSTRUCTIONS

Question 6 1 pts

Below is a 2-bit Dynamic Branch Prediction Scheme:

```
graph LR; 00((00)) -- Taken --> 01((01)); 00 -- Not taken --> 11((11)); 01 -- Not taken --> 11; 01 -- Taken --> 10((10)); 11 -- Taken --> 10; 11 -- Not taken --> 00;
```

Given: Consider a loop that branches seven times in a row and then is not taken once.

What is the prediction accuracy for eight consecutive predictions using the 2-bit prediction scheme with an initial state of '11'?

75%
 87.5%
 62.5%
 50%

Questions

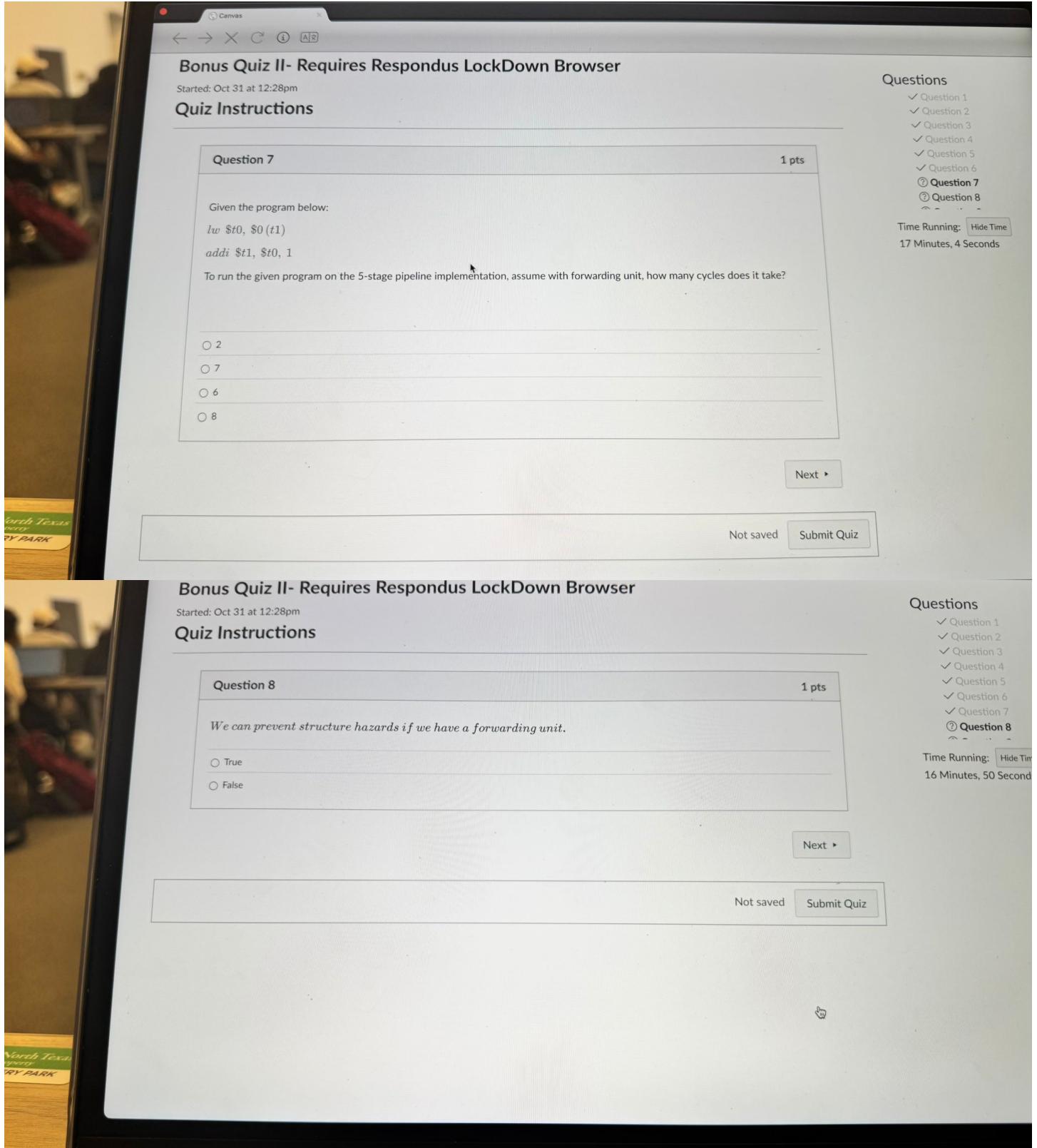
- ✓ Question 3
- ✓ Question 4
- ✓ Question 5
- ✓ Question 6
- ② Question 7
- ② Question 8

Time Running: Hide Time
17 Minutes, 9 Seconds

Next >

Quiz saved at 12:31pm

Submit Quiz

A screenshot of a web-based quiz interface titled "Bonus Quiz II- Requires Respondus LockDown Browser". The quiz has started at 12:28pm on October 31. The first question, "Question 7", is worth 1 point. It asks for the number of cycles required to run the program "lw \$t0, \$0 (t1)" followed by "addi \$t1, \$t0, 1" on a 5-stage pipeline with a forwarding unit. The options are 2, 7, 6, or 8. A "Next >" button is visible below the question. To the right, a "Questions" sidebar lists all 8 questions with checkmarks except for Question 7, which is circled. The time running is 17 minutes, 4 seconds. The second question, "Question 8", is also worth 1 point and asks if structure hazards can be prevented with a forwarding unit. Options are "True" or "False". A "Not saved" message and a "Submit Quiz" button are at the bottom of the question box. The background shows a blurred image of a person's face and hands on a keyboard.

Quiz Instructions

Question 9 1 pts

Given a pipelined hardware design with 5-stages, assuming the following functional unit latencies:

Given the program below:

```

add $t0, $t1, $t2
addi $t1, $t1, 1
mul $t0, $t0, $t1

```

Assume there is no forwarding, if the given program is run on the pipelined implementation, how long does it take to complete execution (ns)?

6ns
 14ns
 18ns
 22ns

MacBook Air

Bonus Questions

Started: Oct 31 at 12:28pm

Quiz Instructions

Question 10 1 pts

Consider a processor with a 16 Kbyte 4-way set associative cache, with 8-byte lines. The memory is byte-addressable and the address space is 32-bit.

How many bits are needed for tags totally in this cache?

10,240 bits
 40,960 bits
 20,480 bits
 32,768 bits

Not saved Submit Quiz

Questions

- Question 1
- Question 2
- Question 3
- Question 4
- Question 5
- Question 6
- Question 7
- Question 8

Time Running: Hide Time
16 Minutes, 27 Seconds