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State Finished
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Time taken 9 mins 43 secs
Marks 5.17/8.00
Grade 6.46 out of 10.00 (64.58%)

Question 1

Incorrect

Mark 0.00 out of 1.00

Do you agree that MIPS (Millions of Instructions Per Second) and FLOPS (Floating Point Operations Per Second) are both measures for a numerical computing performance of a computer?

Select one:

- ☐ True
- ☒ False ✖

The correct answer is 'True'.

Question 2

Correct

Mark 1.00 out of 1.00

Which parameter, among the ones listed below, affects most the length of a processor clock cycle? Read the question statement again, and only then choose your answer!

Select one:

- ☒ The worst case propagation delay of a processor digital circuit ✔
- ☐ The best case propagation delay of a processor digital circuit
- ☐ No listed parameters noticeably affect the processor clock cycle length
- ☐ The number of processor registers
- ☐ The longest feasible access time to processor registers

Your answer is correct.

The correct answer is: The worst case propagation delay of a processor digital circuit

Question 3

Correct

Mark 1.00 out of 1.00

Consider some program, which executes upon a classical pipelined processor with 5 execution stages. For such a program, let instruction 2 require as an input argument the execution result of a preceding instruction 1 in a program. Do you agree that such an execution scenario will always yield a structural pipeline hazard?

Select one:

- ☐ True
- ☒ False ✓

The correct answer is 'False'.

Question 4

Incorrect

Mark 0.00 out of 1.00

Do you agree that the major advantage of Harvard computer architecture over Von Neumann one is that it allows to avoid the occurrence of control hazards for general-purpose pipelined processors?

Select one:

- ☐ a. No choice is correct
- ☒ b. Indeed, this is the key advantage. However, due to a higher implementation complexity, Harvard architecture is not widely used ✗
in modern computing platforms.
- ☐ c. No, Harvard architecture allows to avoid the occurrence of data hazards, but not control hazards.

Your answer is incorrect.

The correct answer is: No choice is correct

Question 5

Correct

Mark 1.00 out of 1.00

Do you agree with the following statement?

Due to the evolution of the key architectural principles behind modern general-purpose processors, such as ARM or Intel x86, the concept of a pipelines execution becomes now obsolete, as it does not provide anymore neither a significant runtime gain, nor a reduced power consumption for executing computer programs.

Select one:

- ☐ True
- ☒ False ✓

The correct answer is 'False'.

Question 6

Partially correct

Mark 0.50 out of 1.00

Recall the key components of a MIPS processor. Match the use cases listed below to the respective CPU unit:

The conversion of floating-point numbers between single and double precision formats

Arithmetic-Logic Unit

✗

The synchronisation of instruction input arguments before starting an execution stage of a pipelined MIPS processor

Control Unit

✗

The extraction of input arguments of an instruction from its 32-bit binary representation, and distributing them across appropriate processor registers, before instruction execution

Control Unit

✓

Communication to memory units and peripheral computer devices

Registers

✗

Your answer is partially correct.

You have correctly selected 1.

The correct answer is: The conversion of floating-point numbers between single and double precision formats → No choice is correct, The synchronisation of instruction input arguments before starting an execution stage of a pipelined MIPS processor → Registers, The extraction of input arguments of an instruction from its 32-bit binary representation, and distributing them across appropriate processor registers, before instruction execution → Control Unit, Communication to memory units and peripheral computer devices → Control Unit

Comment:

Question 7

Correct

Mark 1.00 out of 1.00

How many bytes in one MIPS halfword?

Answer:

2

✓

The correct answer is: 2

Question 8

Partially correct

Mark 0.67 out of 1.00

What are the key differences between "add" and "addi" MIPS processor instructions?

Select one or more:

- ☒ The number of registers involved in the execution ✓
- ☒ Execution time ✓
- ☐ Power consumption during execution
- ☐ The length of binary representations for these instructions

Your answer is partially correct.

You have correctly selected 2.

The correct answers are: Execution time, The number of registers involved in the execution, Power consumption during execution