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**Started on** Wednesday, 8 March 2023, 5:20 AM

**State** Finished

**Completed on** Wednesday, 8 March 2023, 5:28 AM

**Time taken** 8 mins 7 secs

**Marks** 23.00/23.00

**Grade** 100.00 out of 100.00

Question **1**

Correct

Mark 1.00 out of 1.00

The statement `foo[bar]=15` is conceptually the same as:

Select one:

- ☐ a. `@bar`, followed by `foo=15`
- ☐ b. `@foo`, followed by `bar=15`
- ☐ c. `foo[* (bar)]=15`
- ☒ d. `*(foo+bar)=15` ✓
- ☐ e. All answers are wrong

The correct answer is: `*(foo+bar)=15`

Question **2**

Correct

Mark 1.00 out of 1.00

A **counter** is combinational logic, that simply adds a constant (typically 1) to a given number.

Select one:

- ☐ True
- ☒ False ✓

The correct answer is 'False'.

Question **3**

Correct

Mark 1.00 out of 1.00

Variable, arrays, and objects are stored in the computer's ...

Data Memory



High level commands are translated into machine language and stored in the computer's ...

Instruction Memory



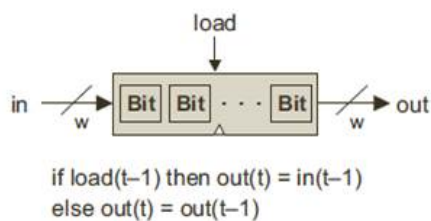
The correct answer is: Variable, arrays, and objects are stored in the computer's ... → Data Memory, High level commands are translated into machine language and stored in the computer's ... → Instruction Memory

Question **4**

Correct

Mark 1.00 out of 1.00

In our text the following is known as a:



Select one:

- ☒ a. w-bit register ✓
- ☐ b. binary cell
- ☐ c. 1-bit register
- ☐ d. data flip-flop

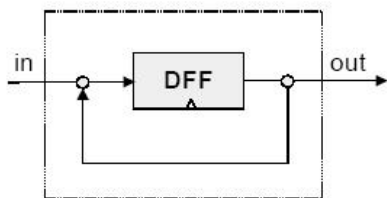
The correct answer is: w-bit register

## Question 5

Correct

Mark 1.00 out of 1.00

Given the HDL language described in Appendix A, is the following design valid?



Select one:

- ☐ True
- ☒ False ✓

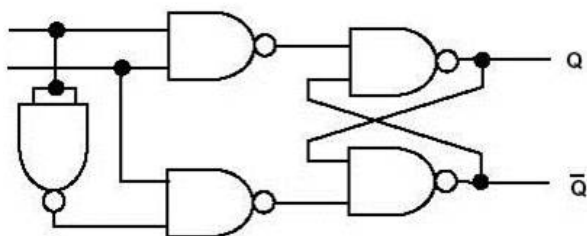
The correct answer is 'False'.

## Question 6

Correct

Mark 1.00 out of 1.00

What is the function of the following circuit?



Select one:

- ☒ a. DFF ✓
- ☐ b. Full Adder
- ☐ c. counter
- ☐ d. SR Latch

The correct answer is: DFF

Question **7**

Correct

Mark 1.00 out of 1.00

The program that translates from assembly to binary is called:

---

Answer:



The correct answer is: Assembler

Question **8**

Correct

Mark 1.00 out of 1.00

Which of the following is NOT a component of the CPU?

---

Select one:

- ☐ a. ALU
- ☐ b. Control Unit
- ☐ c. Registers
- ☒ d. RAM

The correct answer is: RAM

Question **9**

Correct

Mark 1.00 out of 1.00

Which part of the CPU is in charge of decoding the instructions before they can be executed, and deciding which instruction to fetch and execute next?

Select one:

- ☒ a. Control Unit ✓
- ☐ b. ALU
- ☐ c. Program Counter
- ☐ d. ROM

The correct answer is: Control Unit

Question **10**

Correct

Mark 1.00 out of 1.00

Different types of Registers:

Serves as short term memory.

Data Registers



Used for storing memory location.

Addressing Registers



Keeps the address of the next instruction that must be fetched.

PC Register



The correct answer is: Serves as short term memory. → Data Registers, Used for storing memory location. → Addressing Registers, Keeps the address of the next instruction that must be fetched. → PC Register

Question **11**

Correct

Mark 1.00 out of 1.00

The basic idea of the stored program concept is that the logic of the programs is embedded in the hardware.

Select one:

- ☐ True
- ☒ False ✓

The correct answer is 'False'.

Question **12**

Correct

Mark 1.00 out of 1.00

The Screen and Keyboard chips should be part of the ... chip.

Answer:



The correct answer is: Memory

Question **13**

Correct

Mark 1.00 out of 1.00

A-instruction is used for:

Select one:

- ☐ a. Entering a constant.
- ☐ b. Selecting a data memory location.
- ☐ c. Selecting an instruction memory location.
- ☒ d. All of these answers are correct. ✓

The correct answer is: All of these answers are correct.

Question **14**

Correct

Mark 1.00 out of 1.00

When implementing the a 1-bit register, we need to tell the register when to store a new data and when to keep storing its internal value. For that we need a :  
(Choose all correct answers)

Answer:



The correct answer is: multiplexor

Question **15**

Correct

Mark 1.00 out of 1.00

The von Neumann architecture is based on a:

central processing unit (...),	CPU	✓
interacting with a ... device,	memory	✓
receiving data from some ... device,	input	✓
and sending data to some ... device.	output	✓

The correct answer is: central processing unit (...), → CPU, interacting with a ... device, → memory, receiving data from some ... device, → input, and sending data to some ... device. → output

Question **16**

Correct

Mark 1.00 out of 1.00

A **RAM** device accepts the minimum following inputs:

Select one:

- ☐ a. data input, and a load bit
- ☒ b. data input, an address input, and a load bit ✓
- ☐ c. data input, and an address input
- ☐ d. data input, and a clock input

The correct answer is: data input, an address input, and a load bit

Question **17**

Correct

Mark 1.00 out of 1.00

True/False: The clock in a sequential logic circuit keeps track of hours, minutes, and seconds in the local timezone.

Select one:

- ☐ True
- ☒ False ✓

The correct answer is 'False'.

Question **18**

Correct

Mark 1.00 out of 1.00

Match each command (written in typical machine language syntax) to the memory access mode.

LOADI R1,67

Immediate addressing



ADD R1,foo,j ; LOAD\* R2,R1 ; STORE R2,x

Indirect addressing



LOAD R1,67

Direct addressing



The correct answer is: LOADI R1,67 → Immediate addressing, ADD R1,foo,j ; LOAD\* R2,R1 ; STORE R2,x → Indirect addressing, LOAD R1,67 → Direct addressing

Question **19**

Correct

Mark 1.00 out of 1.00

DFF behavior can be represented as:

Select one:

- ☒ a.  $\text{out}(t) = \text{int}(t-1)$
- ☐ b.  $\text{in}(t) = \text{out}(t+1)$
- ☐ c.  $\text{out}(t) = \text{out}(t+1)$
- ☐ d.  $\text{out}(t) = \text{out}(t-1)$

The correct answer is:  $\text{out}(t) = \text{int}(t-1)$

Question **20**

Correct

Mark 1.00 out of 1.00

In the DFF symbolic notation, the small triangle represents the :

Answer:

Clock



The correct answer is: clock



Question **21**

Correct

Mark 1.00 out of 1.00

Which part of the C-Instruction instructs the ALU what to compute?

Answer:



The correct answer is: comp

Question **22**

Correct

Mark 1.00 out of 1.00

What is the mnemonic for an instruction that causes an unconditional branch to a new instruction?

Answer:



The correct answer is: jmp

Question **23**

Correct

Mark 1.00 out of 1.00

16-bit / 64-register memory

16 is the \_\_\_\_ of the register



64 is the \_\_\_\_ of the register



The correct answer is: 16 is the \_\_\_\_ of the register → data width, 64 is the \_\_\_\_ of the register → size (number of words)

[◀ Learning Journal Unit 6](#)

[Chapter 4: Machine Language \(Nisan and Schocken\) - Direct Download ►](#)