Quiz - Lecture 2

Due 31 Jul at 23:59 **Points** 5 **Questions** 5 **Available** 30 Jul at 9:10 - 31 Jul at 23:59 1 day
Time limit None **Allowed attempts** Unlimited

Take the quiz again

Attempt history

	Attempt	Time	Score
KEPT	Attempt 2	less than 1 minute	5 out of 5
LATEST	Attempt 2	less than 1 minute	5 out of 5
	Attempt 1	2 minutes	2.67 out of 5

Score for this attempt: **5** out of 5
Submitted 30 Jul at 10:15
This attempt took less than 1 minute.

Question 1 — 1 / 1 pts

Choose the best answer below.

Is there a limit on the number of ways to express a Nand chip in terms of other chips?

- Yes. Because Nands can only be built directly from transistors

Correct!

- (●) No. You can build Nand from other gates and these can be built from Nand and other gates too.

Nailed it.

- ( ) Yes. Because there is a limited variety of other gates.
- ( ) No. Nand is made of two transistors and there are infinitely many ways to build transistors.

For this question consider how you might try to build a Nand chip in different ways.

Question 2

1 / 1 pts

Why do we use two's complement to represent negative numbers in binary?

Correct!

- [x] So that we can perform addition without worrying about the sign of the numbers

Correct!

- [x] So that we can use the most significant bit as a sign bit

Correct!

- [x] So that there is only one representation of 0

Question 3

1 / 1 pts

Consider the following diagram for a DMUX

sel	a	b
0	in	0
1	0	in

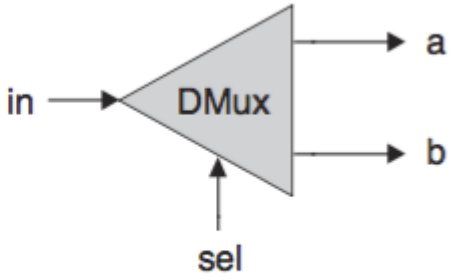


Figure 1.9 Demultiplexor.

where the unselected output wires are set to zero. Would a dmux still be a useful chip if these values were always set to 1? Explain your answer.

- No. It would render the dmux useless because all of the rest of the machine would be expecting a zero in this place rather than a one and there is nothing we could do to fix it.
- Yes. It doesn't matter what is on these inputs.

Correct!

- Yes. You might have to invert this signal or change the expected interpretation of this signal.
- No. The ones make the output of the dmux unpredictable.

Think about how you might fit the modified dmux in a circuit.

Question 4

1 / 1 pts

Consider the following statements on this course's HDL programs.

Which one is wrong?

- HDL is case sensitive and its keywords are written in uppercase letters
- Names of chips and pins may be any sequence of letters and digits not starting with a digit.

Correct!

- Whenever an HDL program XXX.hdl is loaded and parsed into the hardware simulator, the corresponding simulator's *builtIn* chip will be loaded.

  This statement is wrong.The simulator will not load the XXX.hdl in the builtIn chips directory if the XXX.hdl exists in the current directory.

- A chip definition consists of a header and a body. The header specifies the chip interface and the body its implementation.

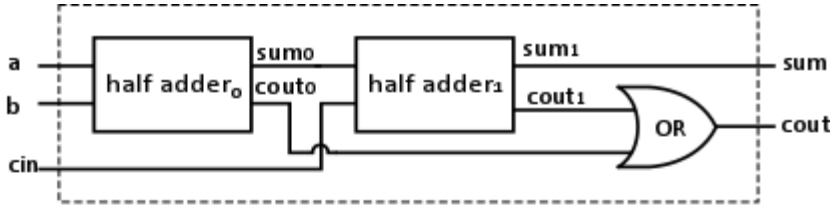
Please refer to textbook Appendix A for more information on HDL.

Question 5

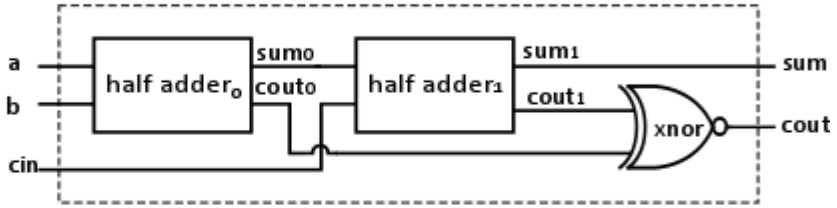
1 / 1 pts

The following four schematics try to implement a full adder using half adders. Which one is correct?

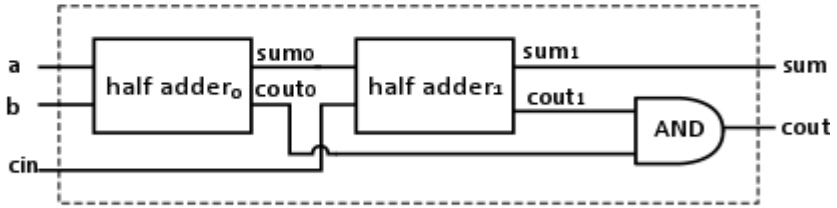
(A)



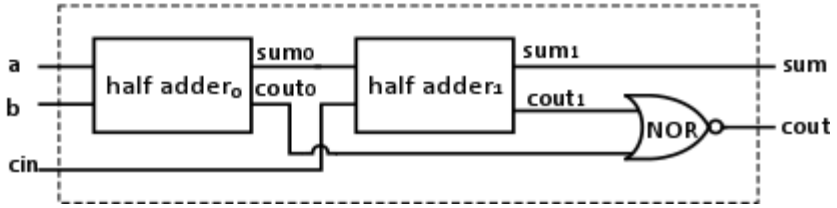
(B)



(C)



(D)



- D

C

Correct!

A

Excellent.

B

Quiz score: **5** out of 5