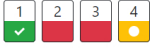


## 338.001, VL Logic, Martina Seidl / Wolfgang Schreiner / Wolfgang Windsteiger, 2022W

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## Quiz navigation



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**Started on** Monday, 30 January 2023, 7:17 PM**State** Finished**Completed on** Monday, 30 January 2023, 7:24 PM**Time taken** 7 mins 35 secs**Grade** 2.50 out of 5.00 (50%)**Question 1**

Correct

Mark 2.00 out of 2.00

Flag question

Given the following set S of propositional formulas

 $\{ a, b, \neg b, (a \vee b), (a \vee \neg b), (\neg a \vee b) \}$ 

Select among the following sets of formulas all which are a minimal unsatisfiable subset (MUS) of the given set S.

Select one or more:

- ☐  $\{ (a \vee \neg b), (\neg a \vee b) \}$
- ☒  $\{ \neg b, b \}$  ✓
- ☒  $\{ a, (\neg a \vee b), \neg b \}$  ✓
- ☐  $\{ (a \vee b), (a \vee \neg b), \neg a \}$
- ☐  $\{ a, b, \neg b, (a \vee b), (a \vee \neg b), (\neg a \vee b) \}$
- ☒  $\{ (a \vee b), (\neg a \vee b), \neg b \}$  ✓
- ☐  $\{ \neg b, (a \vee b), (a \vee \neg b), (\neg a \vee b) \}$

Your answer is correct.

The correct answers are:  $\{ \neg b, b \}$ ,  $\{ a, (\neg a \vee b), \neg b \}$ ,  $\{ (a \vee b), (\neg a \vee b), \neg b \}$ **Question 2**

Incorrect

Mark 0.00 out of 1.00

Flag question

Given the following formula over the reals

 $(x < u \vee u < y) \wedge (y < v \vee v < x) \wedge (v \geq x)$ 

with its propositional skeleton

 $(a \vee b) \wedge (c \vee d) \wedge \neg d$ 

How many propositional solutions does the propositional skeleton of this formula have not taking the theory into account?

Thus we are seeking the number of different satisfying assignments to the propositional skeleton which do not necessarily have to be theory consistent.

Answer: 9 ✗

The correct answer is: 3

**Question 3**

Incorrect

Mark 0.00 out of 1.00

Flag question

Given the following formula over integers

 $((x < y) \vee (x+1 = y)) \wedge (\neg(x < y) \vee \neg(x+1 = y)) \wedge (y = 3) \wedge (x \geq 0)$ 

with its propositional skeleton

 $(a \vee b) \wedge (\neg b \vee \neg a) \wedge c \wedge d$ 

How many theory consistent propositional solutions does the propositional skeleton of this formula have?

Thus we are seeking the number of different assignments to the propositional skeleton which not only satisfy it propositionally but also are theory consistent.

Answer: 3 ✗

The correct answer is: 2

**Question 4**

Partially correct

Mark 0.50 out of 1.00

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Which of the following propositional formulas are translations of  $a = b$  to SAT where  $a$  and  $b$  are bit-vectors of size 2.

- ☒ 1.  $(a_1 \leftrightarrow b_1) \wedge (a_2 \leftrightarrow b_2)$  ✓
- ☐ 2.  $(\neg a_1 \vee b_1) \wedge (\neg a_2 \vee b_2) \wedge (\neg b_1 \vee a_1) \wedge (\neg b_2 \vee a_2)$
- ☐ 3.  $(\neg a_1 \vee a_2) \wedge (\neg a_2 \vee b_1) \wedge (\neg b_1 \vee b_1) \wedge (\neg b_2 \vee a_2)$
- ☐ 4.  $(a \leftrightarrow b)$
- ☐ 5.  $(a_1 \rightarrow b_1) \wedge (a_2 \rightarrow b_2)$

Die Antwort ist teilweise richtig.

You have correctly selected 1.

The correct answers are:

$(a_1 \leftrightarrow b_1) \wedge (a_2 \leftrightarrow b_2)$ ,

$(\neg a_1 \vee b_1) \wedge (\neg a_2 \vee b_2) \wedge (\neg b_1 \vee a_1) \wedge (\neg b_2 \vee a_2)$

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