SMT1Q

Started on	Monday, 8 January 2024, 7:16 PM
State	Finished
Completed on	Monday, 8 January 2024, 7:31 PM
Time taken	15 mins
Grade	**4.00** out of 5.00 (**80**%)

Question 1

Correct

Mark 2.00 out of 2.00

Flag question

Which of the following formulas can be shown to be satisfiable/unsatisfiable by just applying BCP (and nothing else)?

Select one or more:

- [ ] 1. $(\neg a \lor c) \land (c \lor \neg d \lor \neg e \lor a) \land (\neg e \lor \neg f \lor \neg d \lor \neg a) \land a \land \neg b$
- [ ] 2. $(c \lor \neg d \lor \neg a) \land \neg b$
- [x] 3. $(\neg a \lor c) \land (\neg d \lor \neg e \lor a) \land (c \lor \neg f \lor \neg d \lor \neg a) \land a$ ✔
- [x] 4. $(b \lor a) \land (b \lor \neg a) \land \neg b$ ✔
- [ ] 5. $(c \lor \neg d \lor \neg e \lor a) \land (\neg e \lor \neg f \lor \neg d \lor \neg a) \land a$

Die Antwort ist richtig.

The correct answers are: $(\neg a \lor c) \land (\neg d \lor \neg e \lor a) \land (c \lor \neg f \lor \neg d \lor \neg a) \land a$, $(b \lor a) \land (b \lor \neg a) \land \neg b$

Question 2

Incorrect

Mark 0.00 out of 1.00

Flag question

Given the following formula:

$\neg(\neg a \longrightarrow (b \land c)) \land (a \leftrightarrow b)$

How many clauses do we obtain when we transform the formula into a semantically equivalent CNF (approach 1 of the lecture)?

Answer:

5 ✘

The correct answer is: 4

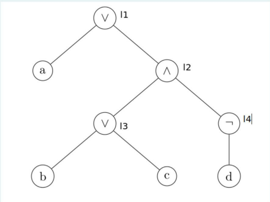
Question 3

Correct

Mark 2.00 out of 2.00

Flag question

Given the following syntax tree of a propositional formula. This tree is annotated with labels to be used in the transformation to CNF.



Which clauses occur in the CNF when using approach 2 as presented in the lecture to translate the formula to CNF?

- [ ] 1. $(\neg a \lor l1 \lor l2)$
- [x] 2. $(l3 \lor \neg c)$ ✔
- [x] 3. $(l3 \lor \neg b)$ ✔
- [ ] 4. $(b \lor c)$
- [x] 5. $(l4 \lor d)$ ✔
- [x] 6. $(\neg l4 \lor \neg d)$ ✔
- [ ] 7. $(\neg l1)$

Die Antwort ist richtig.

The correct answers are:
$(\neg l4 \lor \neg d)$,
$(l3 \lor \neg b)$,
$(l4 \lor d)$, $(l3 \lor \neg c)$

Finish review