

CS161 - Quiz 4 Results for ZHANG, CHARLES XIAN

Score for this quiz: **3.17** out of 4

Submitted Feb 24 at 7:01pm

This attempt took 20 minutes.

Question 1

Original Score: 0 / 1 pts **Regraded Score: 1 / 1 pts**

⚠ This question has been regraded.

Given two arbitrary propositional sentences α and β , if α does not entail β , you can prove it using resolution.

Correct!

☒ True

☐ False

Question 2

0.67 / 1 pts

Which of the following are Horn clauses? Choose ALL that apply.

Incorrect Answer

☐ $A \wedge B \wedge D \implies C$

☐ $A \vee B \vee \neg C \vee D$

Correct!

☒ $A \wedge B \wedge D \implies \neg C$

☐ $A \wedge \neg B \wedge \neg D \implies \neg C$

Correct!

☒ $\neg A \vee \neg B \vee \neg C$

Question 3

0.5 / 1 pts

For this question, you will need to convert a propositional sentence to Conjunction Normal Form (CNF).

Please fill in the blanks with symbols like "A" or " $\sim A$ ".

How to represent a CNF:

- For each blank below, you fill in either a positive literal like "A" or a negative literal like " $\sim A$ ". Negation is represented by " \sim ".
- It is possible that more blanks are provided than needed. If that's the case, fill in the blanks with "None".
- Important:** Please follow **the alphabetical order** to sort **clauses** and **literals within a clause**.

Example:

Given the sentence $(\sim B \vee C) \wedge (\sim B \vee A) \wedge (C \wedge B \wedge F)$

your result should look like this:

$(A \vee \sim B \vee \text{None} \vee \text{None})$

$\wedge (\sim B \vee C \vee \text{None} \vee \text{None})$

$\wedge (B \vee C \vee F \vee \text{None})$

$\wedge (\text{None} \vee \text{None} \vee \text{None} \vee \text{None})$

- Note that here BC is considered ahead of BCF alphabetically, so the clause $(\sim B \vee C)$ will be before $(B \vee C \vee F)$.
- If we have clauses $(A \vee B)$ and $(A \vee C)$, $(A \vee B)$ will be before $(A \vee C)$ because AB is alphabetically ahead of AC.

Convert the following sentence to CNF:

$A \Leftrightarrow (B \Rightarrow C)$

Result:

$(\text{ } \sim A \text{ } \vee \text{ } \sim B \text{ } \vee \text{ } \text{None} \text{ } \vee \text{ } \text{None} \text{ })$

$\wedge (\text{ } \sim A \text{ } \vee \text{ } C \text{ } \vee \text{ } \text{None} \text{ } \vee \text{ } \text{None} \text{ })$

$\wedge (\text{ } A \text{ } \vee \text{ } B \text{ } \vee \text{ } \text{None} \text{ } \vee \text{ } \text{None} \text{ })$

$\wedge (\text{ } A \text{ } \vee \text{ } \sim C \text{ } \vee \text{ } \text{None} \text{ } \vee \text{ } \text{None} \text{ })$

Answer 1:

You Answered

~A

Correct Answer

A

Answer 2:

You Answered

~B

Correct Answer

B

Answer 3:

Correct!

None

Answer 4:

Correct!

None

Answer 5:

You Answered

~A

Correct Answer

A

Answer 6:

You Answered

C

Correct Answer

~C

Answer 7:

Correct!

None

Answer 8:

Correct!

None

Answer 9:

You Answered

A

Correct Answer

~A

Answer 10:

You Answered

B

Correct Answer

~B

Answer 11:

You Answered

None

Correct Answer

C

Answer 12:

Correct!

None

Answer 13:

You Answered

A

Correct Answer

None

Answer 14:

You Answered

~C

Correct Answer

None

Answer 15:

Correct!

None

Answer 16:

Correct!

None

Question 4

1 / 1 pts

$\alpha \models \beta$ if and only if $\alpha \models \beta$ is satisfiable.

☐ True

☒ False

Correct!

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