

Quiz 2 Propositional and First Order Logic

* Required

Name and Roll Number *

Your answer

Suppose S_1 entails S_2 and S_2 is unsatisfiable, then what can be said about S_1 ? * 1 point

- ☐ Satisfiable
- ☐ Unsatisfiable
- ☐ Valid
- ☐ Cannot be said anything about it

There is a CNF with 8 literals which corresponds to 8 variables (i.e. one literal for a variable). How many assignments are possible to make the CNF true? * 1 point

- ☐ 256
- ☐ 512
- ☐ 255
- ☐ 1024



Which of the following is correct about resolution in propositional logic? * 1 point

- ☐ If S is a set of clauses that resolves to a clause R then S entails R
- ☐ If S is a set of clauses that entails to a clause R then S resolves R
- ☐ Resolution is a powerful to prove a set of clauses unsatisfiable
- ☐ Resolution is a weak technique

If x is the number of unit literals and y is the number of pure literals, then what will be the value of $20x+y$ for the given set of clauses * 1 point

$\{\neg c, \neg b \vee c, c \vee \neg e, b \vee d \vee \neg e, \neg a \vee \neg d, b\}$

- ☐ 22
- ☐ 42
- ☐ 12
- ☐ 32

Find the assignment to the following CNF formula using model enumeration inference with MOM's heuristic. Resolve the clashes in selection using lexicographical order and by choosing TRUE over FALSE. Report your answer as a consecutive string for abcdef. For example 10011 implies that $a=\text{TRUE}$, $b=c=\text{FALSE}$, $d=e=\text{TRUE}$. * 1 point

$\{c \vee \neg d, \neg b \vee \neg c, a \vee \neg c \vee e, b \vee d \vee \neg e, \neg a \vee \neg d\}$

Your answer



Unification is the process of *

1 point

- ☐ evaluating an expression
- ☐ finding substitutions that makes different logical expressions look identical
- ☐ proving an expression false by contradiction
- ☐ joining two expressions

Prolog programming language supports inference using *

1 point

- ☐ Forward chaining
- ☐ Backward chaining
- ☐ Both forward and backward chaining
- ☐ None

Write logical representation of the following sentence, " If someone is noisy, everybody is annoyed". *

1 point

Your answer

Which one of the following is the method to propositionalize an inference problem? *

1 point

- ☐ Local instantiation
- ☐ Global instantiation
- ☐ Existential instantiation
- ☐ All the above



The most general unifier for "Older(Father(y),y), Older(Father(x),John)" is * 1 point

- ☐ No unifier exists
- ☐ {x/Father, y/John}
- ☐ {y/Father, x/John}
- ☐ {y/John, x/John}

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