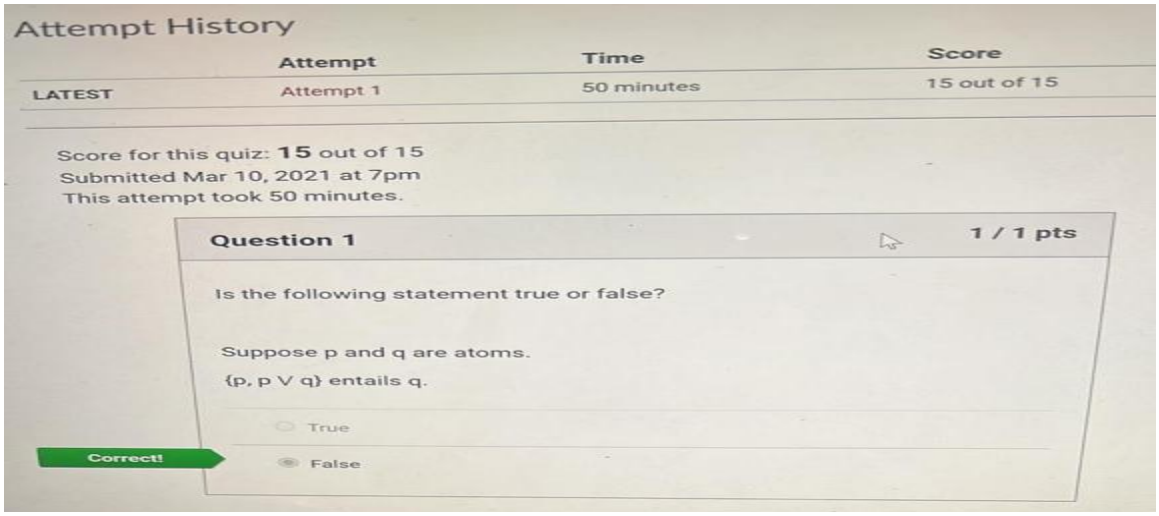
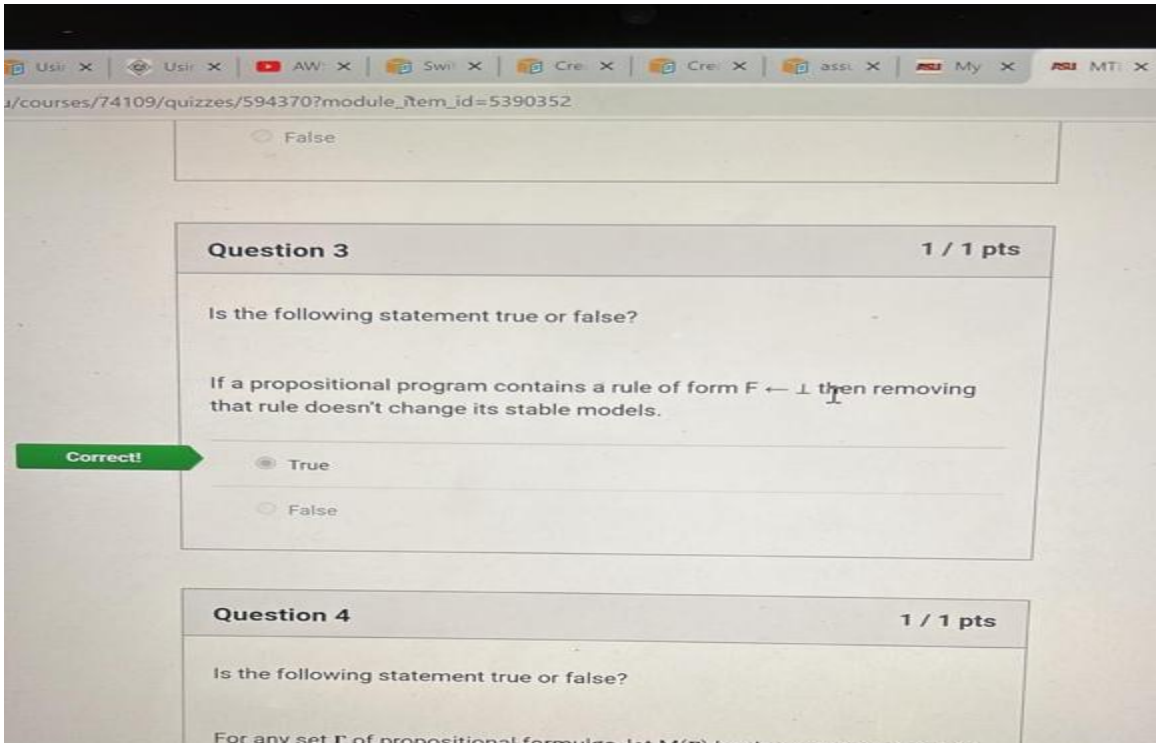
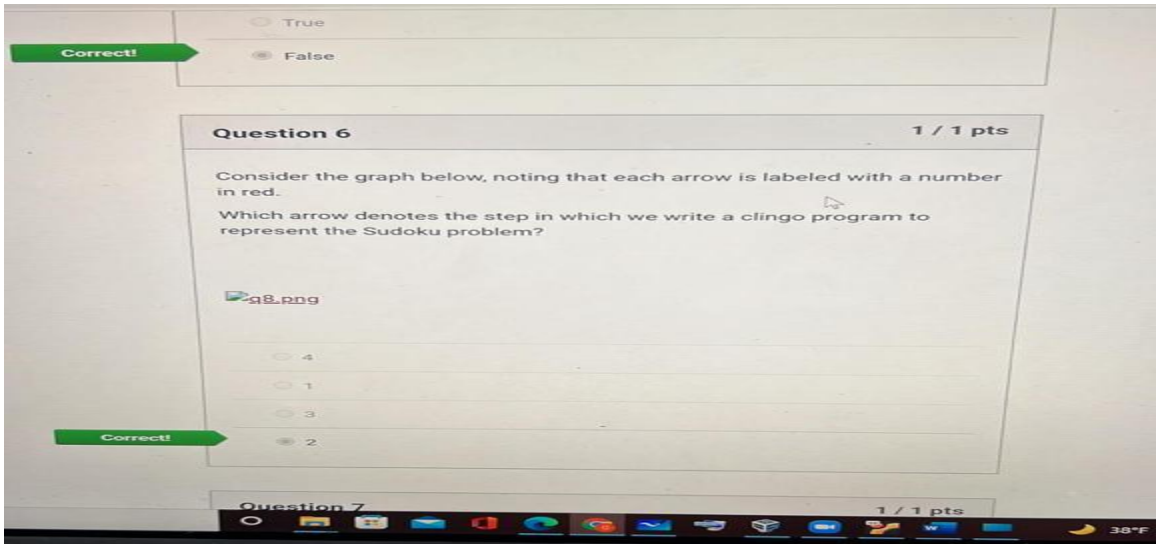


Is the following statement true or false?
Suppose p and q are atoms (p, p V q) entails q (intersection)
Ans. False



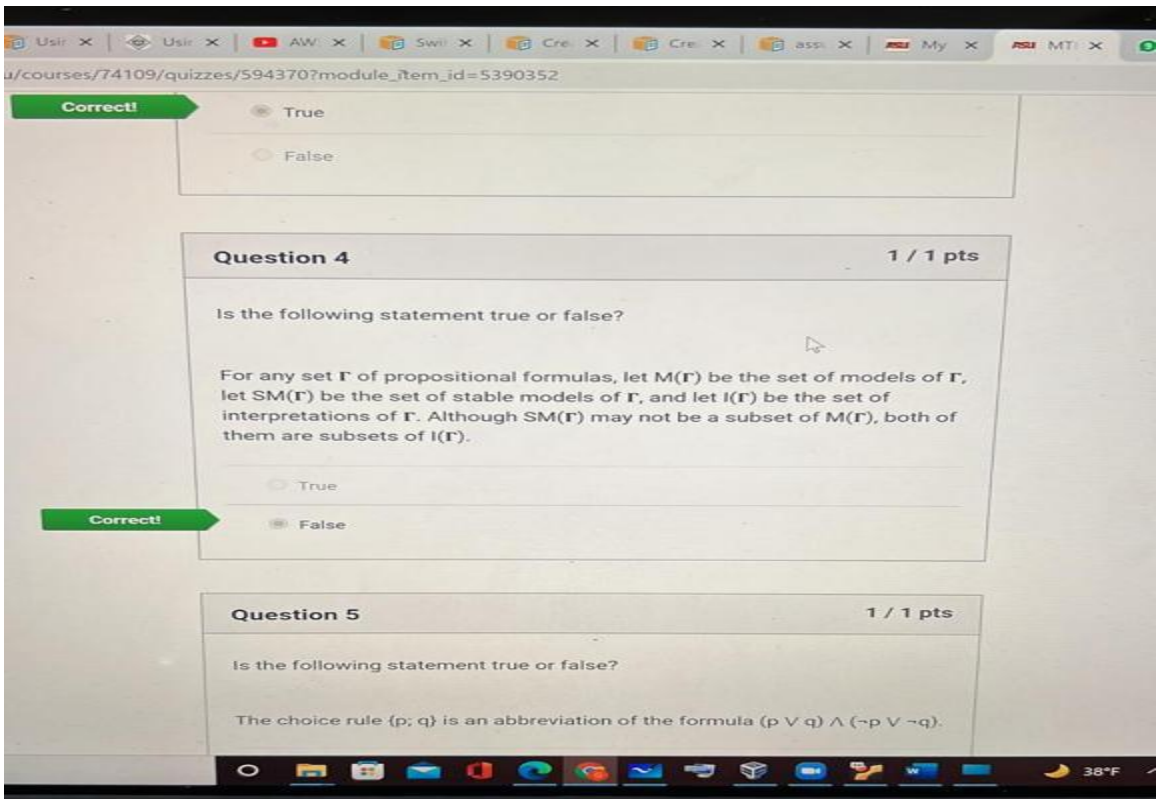
Is the following statement true or false?
If a propositional program contains a rule of form F <- Inverted T then removing that rule doesn't change its stable models

A. True



Consider the graph below, noting that each arrow is labeled with a number in red.
Which arrow denotes the step in which we write a clingo program to represent the Sudoku problem?

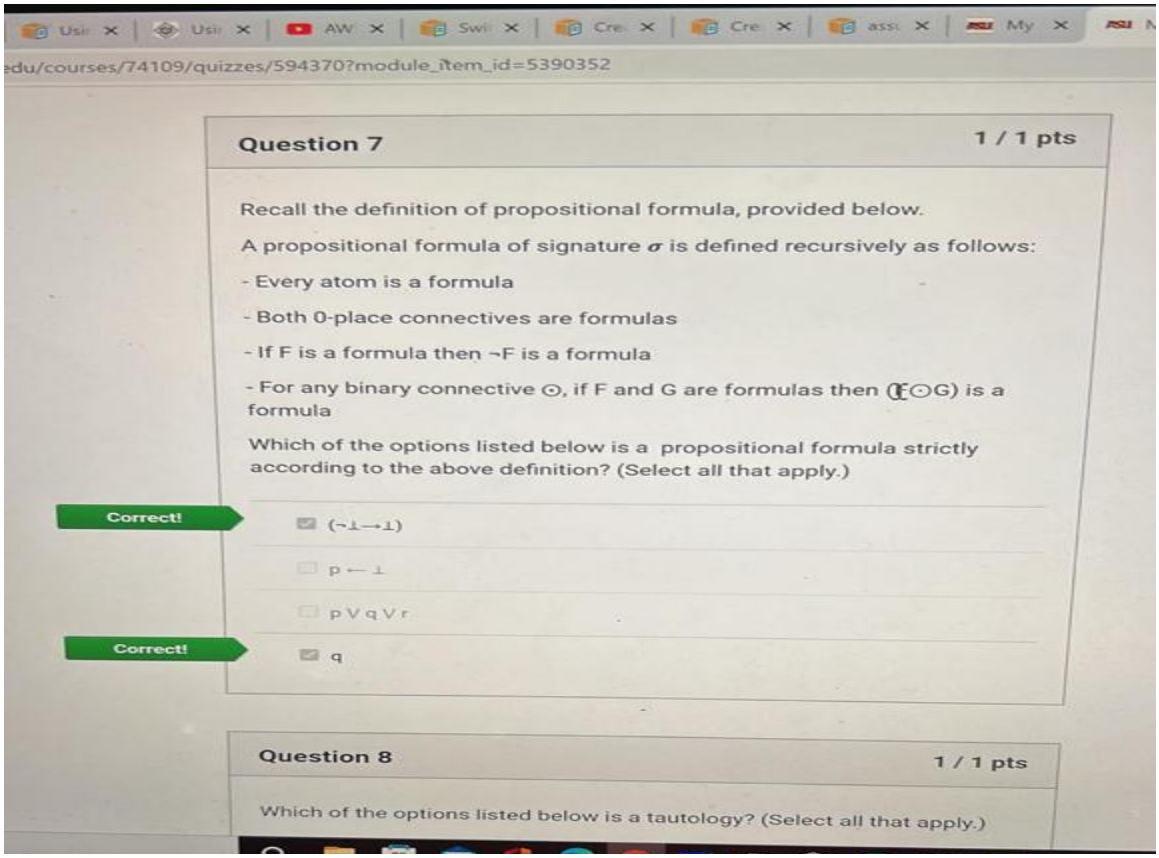
A. 2



Is the following statement true or false?

For any set T of propositional formulas; let M(T) be the set of models of T, let SM(T) be the set of stable models of T, and let I(T) be the set of interpretations of T. Although SM(T) may not be a subset of M(T), both of them are subsets of I(T)?

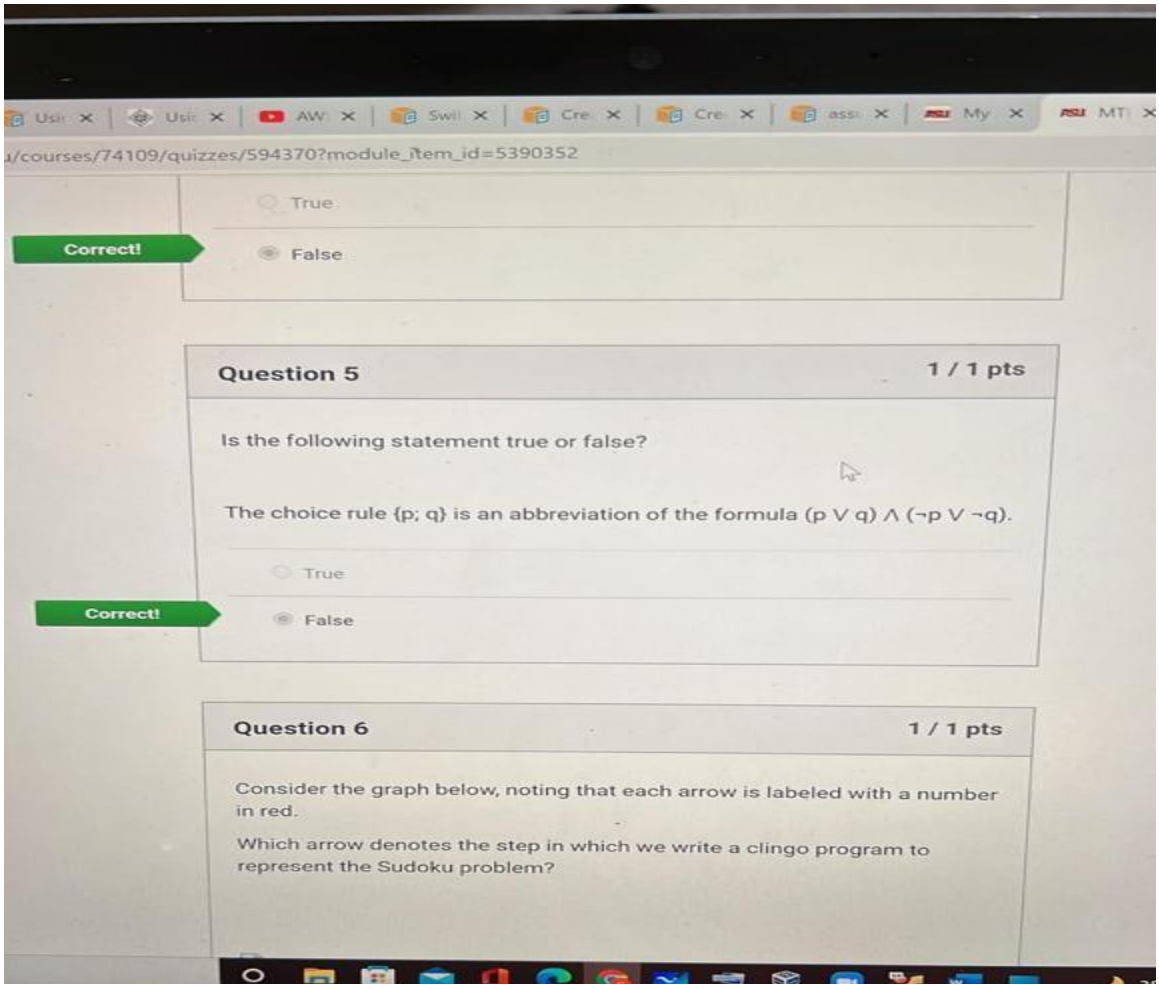
A. False



Recall the definition of propositional formula, provided below.
A propositional formula of signature O(sigma) is defined recursively as follows:

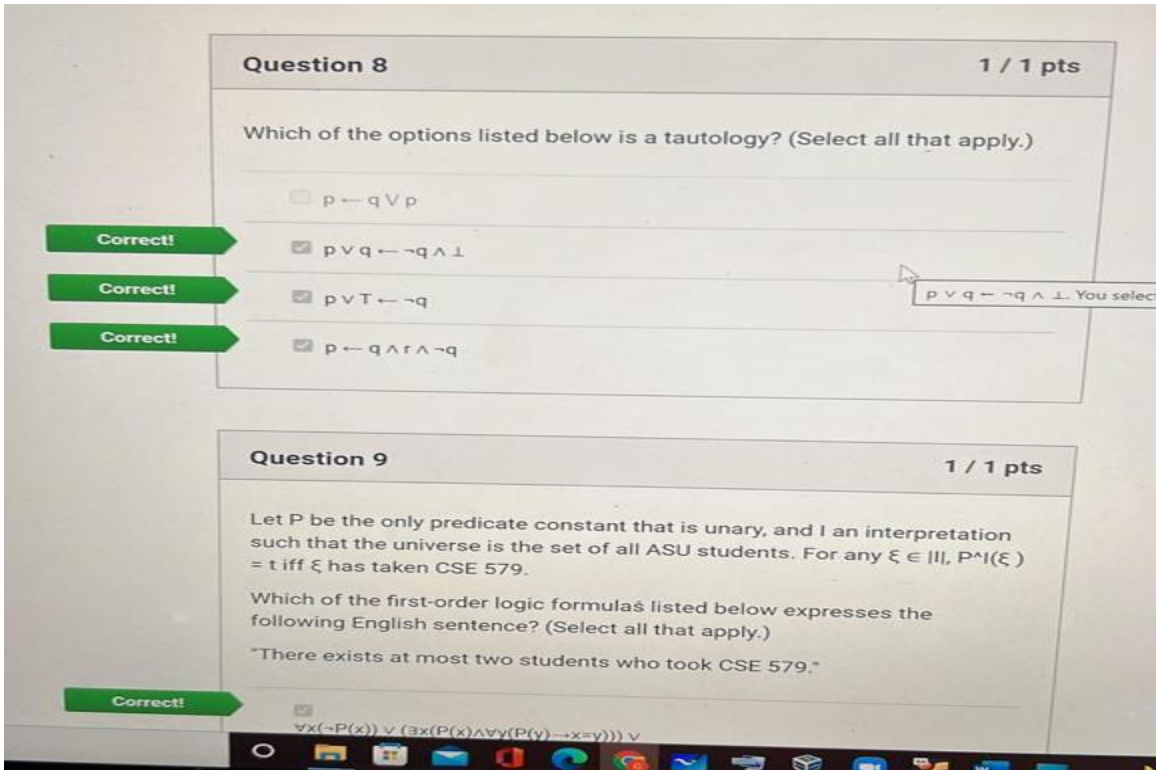
- Every atom is a formula
- Both 0-place connectives are formulas
- If F is a formula then ~F is a formula
- For any binary connective dot (.), if F and G and formulas then (F(.)G) is a formula

Which of the options listed below is a propositional formula strictly according to the above definition(select all that apply) ?
Ans: A & D (q)

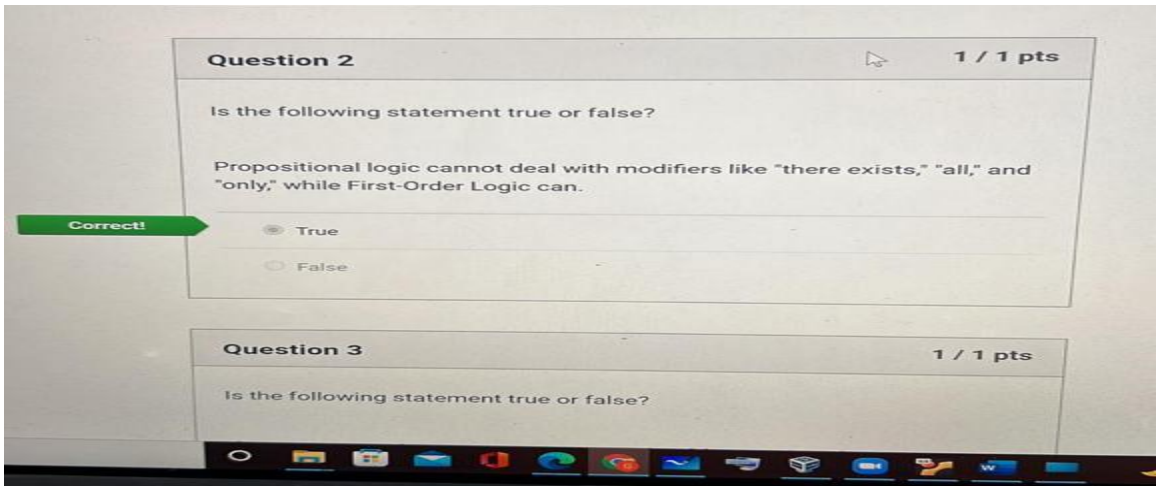


Is the following statement true or false?

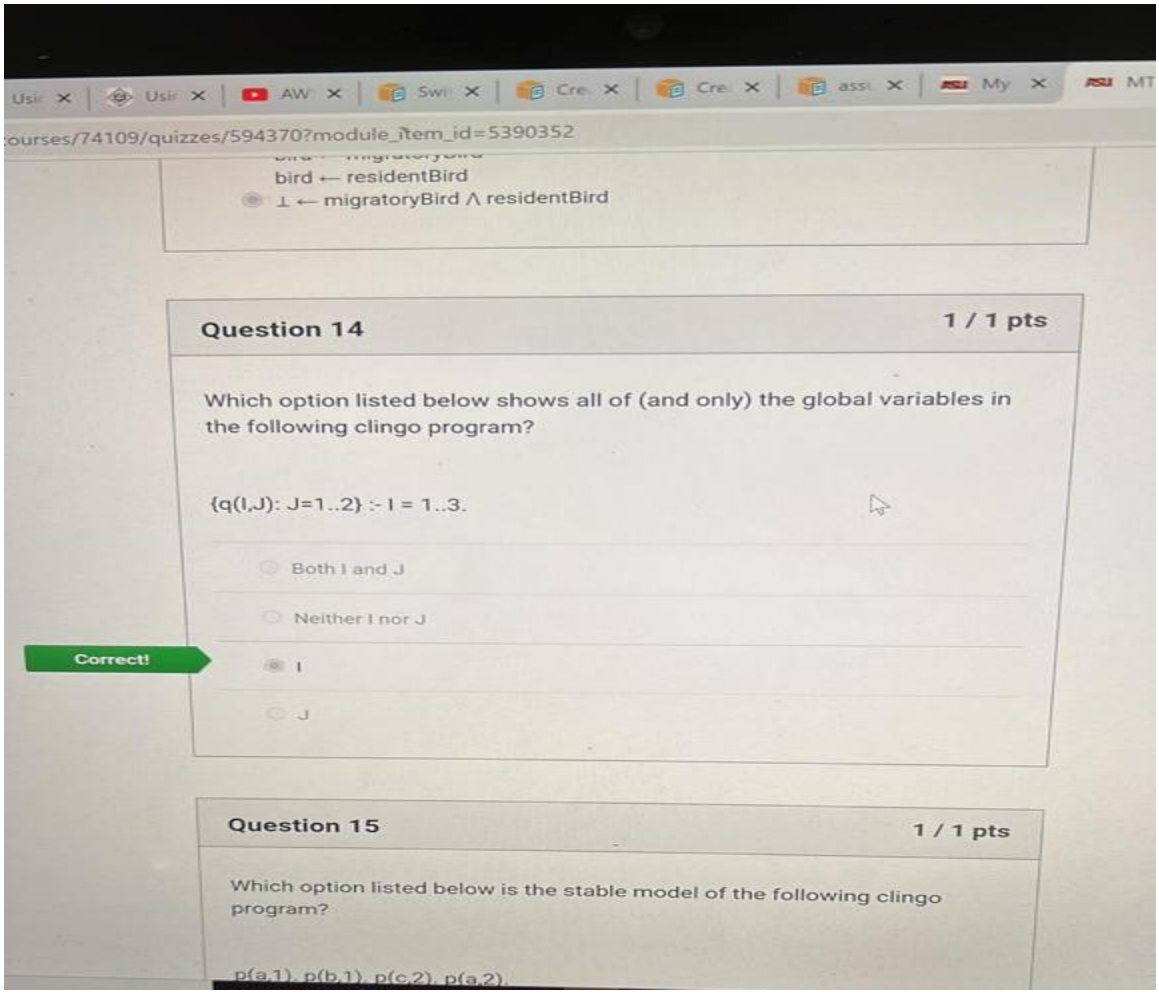
The choice rule (p, q) is an abbreviation of the formula (p V Q) ^ (~p V ~q).
And: False



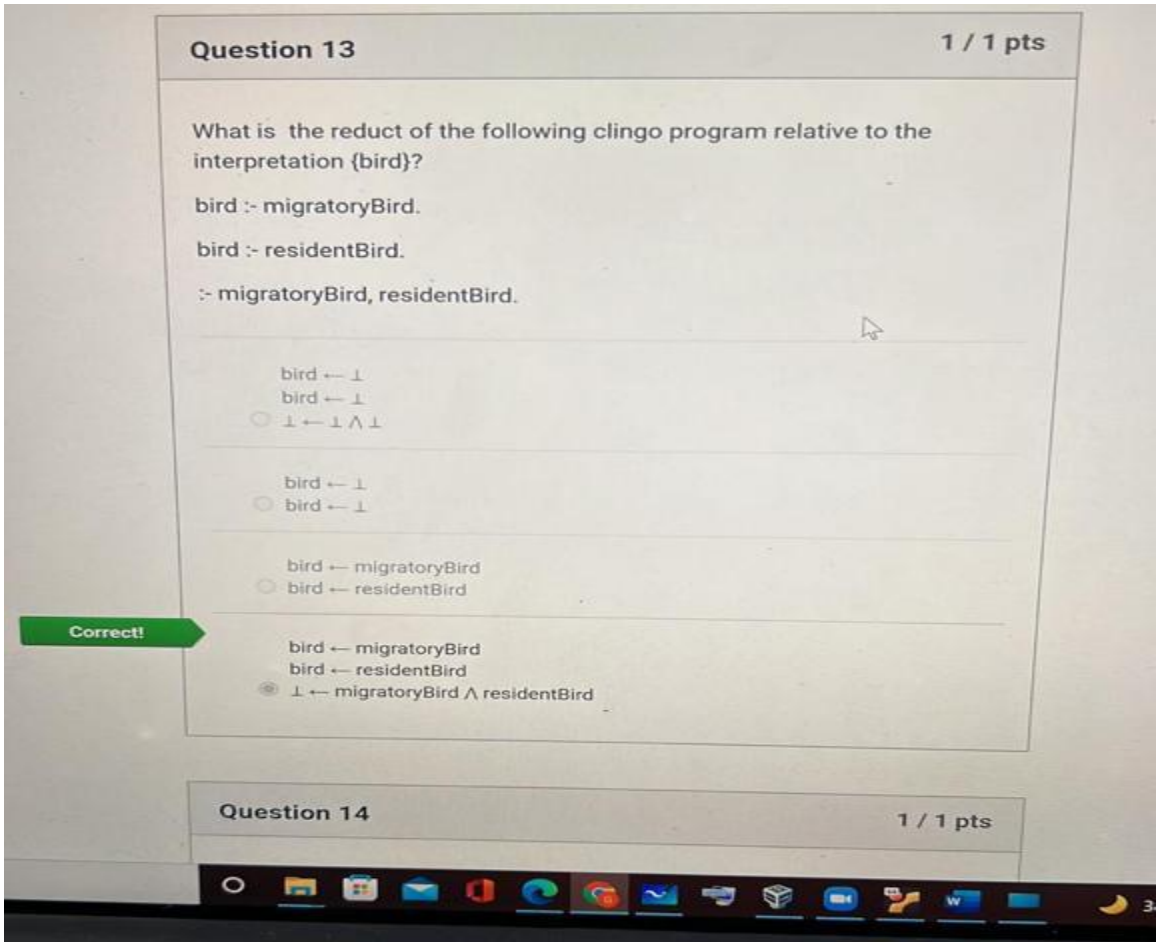
Which of the options listed below is a tautology? (Select all that apply)
Ans: BCD
P V q <- ~q ^ (Inverted T)
P V T <- ~q
P <- q ^ r ^ ~q



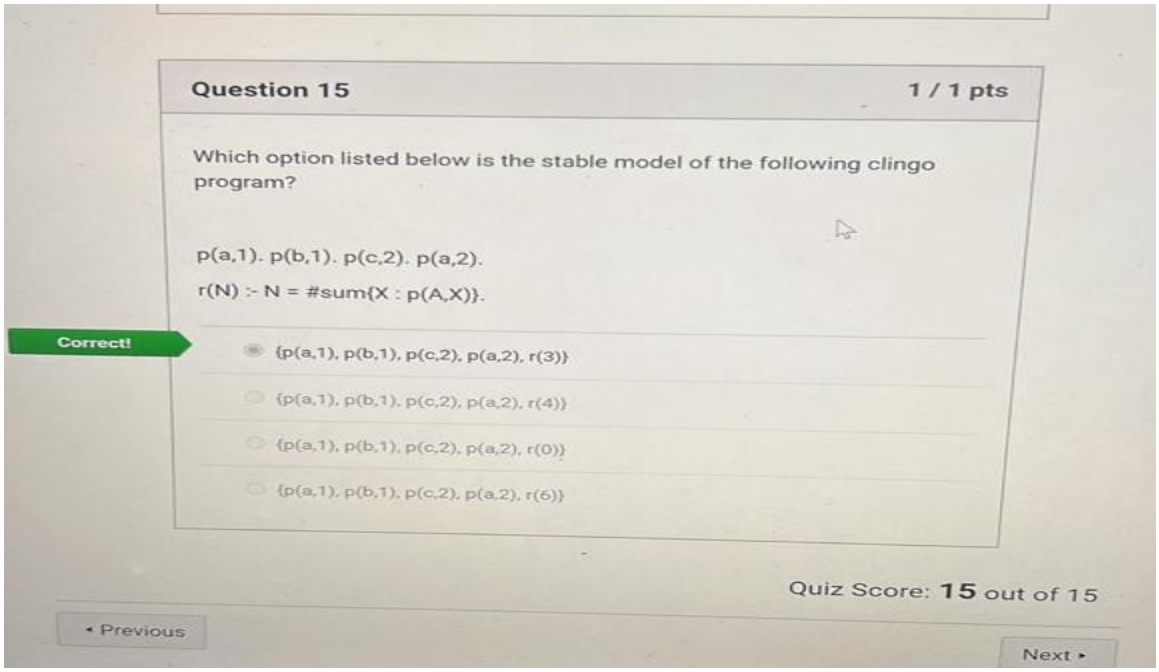
Is the following statement true or false?
Propositional logic cannot deal with modifiers like “there exists.” “all” and “only”, while First Order Logic can?
Ans: True



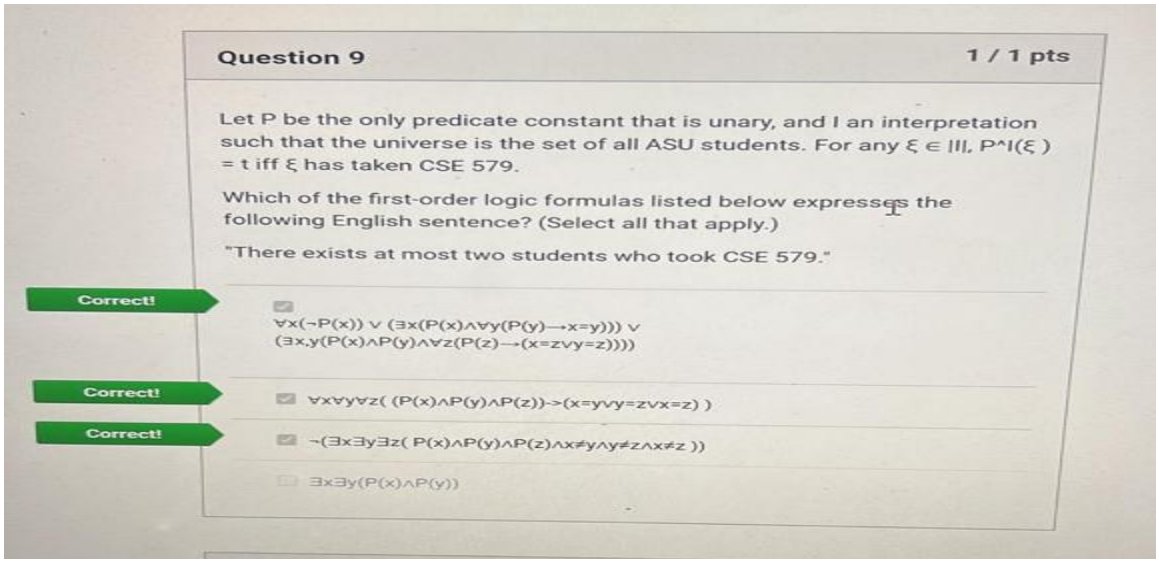
Which option listed below shows all of (and only) the global variables in the following clingo program?
{q(I,J) : J = 1..2} :- I = 1..3.
Ans: I (Option C)



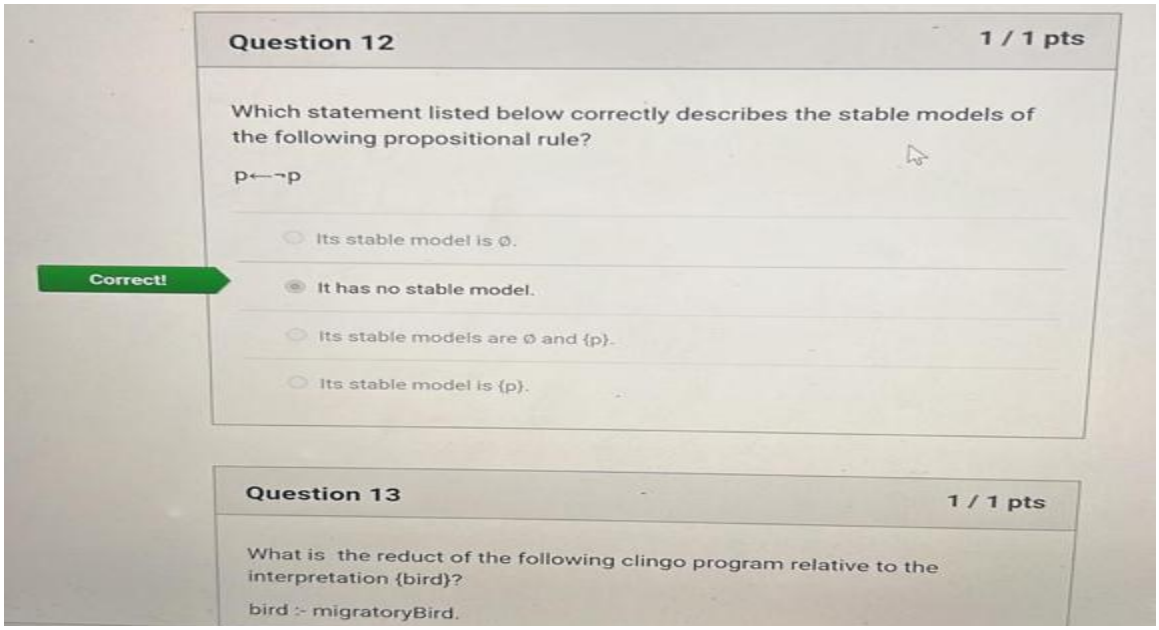
What is the reduct of the following clingo program relative to the interpretation (bird) ?
bird :- migratoryBird
bird :- residentBird.
:- migratoryBird, residentBird
Ans: D



Which option listed below is the stable models of the following clingo program ?
P (a,1).p(b,1).p(c,2).p(a,2).
r(N) :- N = #sum{X : p(A, X) }.
Ans: A



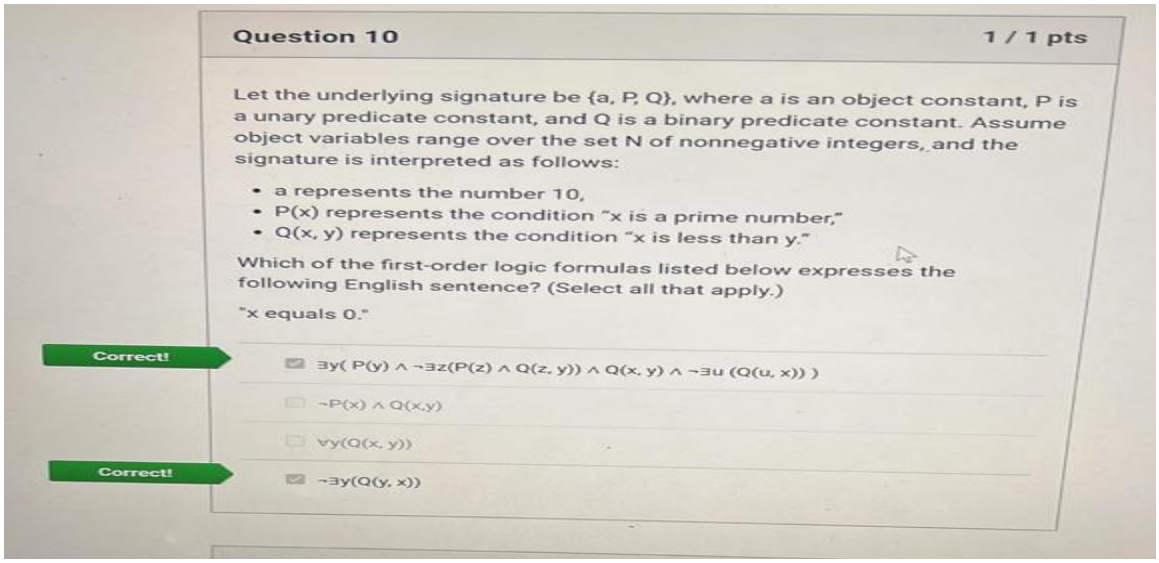
Let P be the only predicate constant that is unary, and I an interpretation such that the universe is the set of all ASU students. For any E(Episilon) Equals | I |, P ^ I (E) = t iff E has taken CSE 579/.
Which of the first order logic formulas listed below expresses the following English sentence? (Select all that apply.)
“There exists at most two students who took CSE 579.”
Ans : A, B, C



Which statement listed below correctly describes the stable models of the following propositional rule?

P <- ~p

Ans : It has no stable model (B)



Let the underlying signature be {a, P, Q }, where a is an object constant, P is the unary predicate constant, and Q is the binary predicate constant. Assume object variables range over the set N of non negative integers and the signature is interpreted as follows:

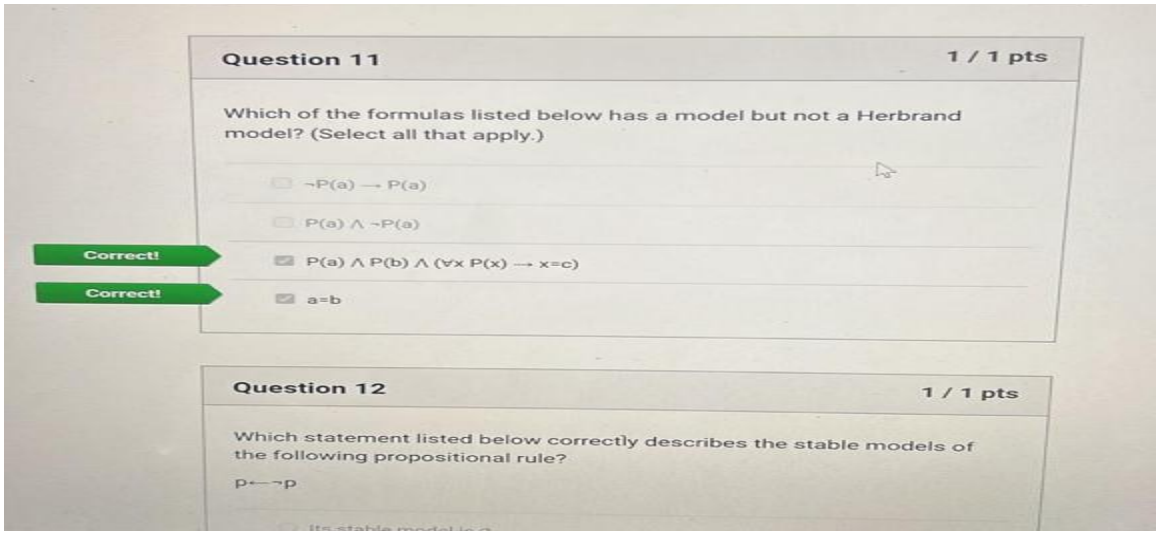
a represents the number 10,

P(x) represents the condition “x is a prime number.”

Q(x,y) represents the condition “x is less than y.”

Which of the first order logic formulas listed below expresses the following English sentence? (Select all that apply)?

Ans : A, D



Which of the formulas listed below has a model but not a Herbrand model? (Select all that apply.)
Ans : C, D