

Module 3 Graded Quiz

Due Feb 20 at 11:59pm **Points** 10 **Questions** 10
Available after Feb 6 at 11:59pm **Time Limit** 300 Minutes
Allowed Attempts 3

Take the Quiz Again

Attempt History

	Attempt	Time	Score
LATEST	<u>Attempt 1</u>	21 minutes	10 out of 10

Score for this attempt: **10** out of 10

Submitted Feb 20 at 5:26pm

This attempt took 21 minutes.

Question 1

1 / 1 pts

What is the stable model of the following one-rule program?

p :- not p.

☐ {p}

☒ No stable model

☐ \emptyset

Correct!

Question 2

1 / 1 pts

Assuming the signature consists of p, q, r. Which of the options are **models** of the following program?

$$p \leftarrow q \wedge r$$

$$q \leftarrow p$$

$$r \leftarrow p$$

Choose all that apply.

Correct!

☒ \emptyset (empty set)

☐ {q, r}

Correct!

☒ {r}

Correct!

☒ {q}

Correct!

☒ {p, q, r}

☐ {p}

☐ {p, q}

Question 3

1 / 1 pts

Assuming the signature consists of p, q, r. Which of the option is the stable model of the following program?

$$p \leftarrow q \wedge r$$

$$q \leftarrow p$$

$$r \leftarrow p$$

☐ {q, r}

Correct!

- ☐ {p, q}
- ☐ {p}
- ☐ {r}
- ☒ \emptyset (empty set)
- ☐ {p, r}
- ☐ {p, q, r}
- ☐ {q}

Question 4**1 / 1 pts**

Which option is a positive program in the language of clingo?

- ☐ cloudy, rain :- not sunny.
- ☐ wet :- rain.
- ☐ #const n=5.
composite(N) :- N=1..n, l=2..N-1, N%l=0.
- ☐ prime(N) :- N=2..n, not composite(N).
- ☐ number(1).
small_number(1).
big_number(X) :- number(X), not small_number(X).

Correct!

- ☐ #const k=2.
fullTimeStudent, partTimeStudent :- student.
- ☒ student :- k=1..3.

Question 5**1 / 1 pts**

How many atoms are there in the stable model of the following clingo program?

`pair(0..1, (1..2)*(2..3)).`

Correct!☒ 8☐ 16☐ 2☐ 4**Question 6****1 / 1 pts**

The propositional image of a clingo program consists of the instances of its rules rewritten as propositional formulas. Which option is equivalent to the propositional image of the following clingo program?

`p(3..6).`

`q(X*2) :- p(X), X<5.`

☐ $p(3)$ ☐ $p(6)$ ☐ $q(6) \leftarrow p(3)$ ☐ $q(8) \leftarrow p(4)$ ☐ $q(10) \leftarrow p(5)$ ☐ $q(12) \leftarrow p(6)$

Correct! $p(3)$ $p(4)$ $p(5)$ ☐ $p(6)$ $q(6) \leftarrow p(3)$ $q(8) \leftarrow p(4)$ $q(10) \leftarrow p(5)$ $q(12) \leftarrow p(6)$ $p(3) \wedge p(4) \wedge p(5) \wedge p(6)$ ☒ $q(6) \leftarrow p(3)$ $q(8) \leftarrow p(4)$ ☐ $p(3) \wedge p(6)$ $q(6) \leftarrow p(3)$ **Question 7****1 / 1 pts**

Which option is equivalent to the following clingo program?

 $p(1,1). p(1,2). p(2,1). p(2,2).$ ☐ $p(1;2, 1;2).$ ☒ $p(1..2, 1..2).$ ☐ $p(X, X^{**}|X-Y|) :- X=1..2, Y=2..3.$ ☐ $p(X,Y) :- X=1..2, Y=1..X.$ **Correct!****Question 8****1 / 1 pts**Which of the statements about the following clingo program Π is true?

$a :- \text{not } b.$

$b :- \text{not } a.$

☐

The models of the propositional image of Π happen to be the same as the stable models of Π .

☐

$\{a, b\}$ is a stable model of Π

☐

\emptyset (i.e., empty set $\{\}$) is a model of the propositional image of Π .

☒

The minimal models of the propositional image of Π happen to be the same as the stable models of Π .

Correct!

Question 9

1 / 1 pts

Which of the clingo programs can represent “either a is true or b is true”?

☐

$p(a;b).$

$a.$

☐

$b.$

$a :- \text{not } a.$

☐

$b :- \text{not } b.$

$a :- \text{not } b.$

☒

$b :- \text{not } a.$

Correct!

Question 10**1 / 1 pts**

True or False? For any propositional formula F , every stable model of F is a model of F .

Correct!☒ True☐ False**Quiz Score: 10** out of 10