

# Fundamentals of Artificial Intelligence and Knowledge Representation – Module 4

Prof. Federico Chesani – 7th of July, 2020

Available time: 25 min. + 10 min. for submitting the essay

**Notice:** when submitting your essay, please name the file in the following way:

FamilyNameFirstName.date.pdf/.docx

For example, if you are John Smith, the file will be named:

SmithJohn.20200707.pdf

## *Exercise*

The candidate is invited to present the notion of the cut “!” operator in the Prolog language, shortly explaining how it works. To this end, the candidate is invited to show a short example of a predicate containing the cut, and to illustrate its effects.

After that, the candidate is invited to write a meta-predicate

**how\_many(Pred, Num\_of\_clauses)**

that, given in input a predicate **Pred**, returns in **Num\_of\_clauses** the number of of clauses defining the predicate **Pred** in the current program.

For example, given the program:

```
a(X) :- b(X), c(X).  
a(X) :- Y is X+1, b(Y), c(Y).  
a(X) :- Y is X-1, b(Y), c(Y).
```

and the query

```
?- how_many(a(X), Result),
```

the following outcomes are expected:

```
?- how_many(a(X), Result).  
Result = 3.
```

This is because there are three different clauses that defines the predicate **a(X)**.