

CS 360 Lab 5

Name:

Lab 5 tasks

Part 1 (2 points)

Demonstrate several example runs of the Tic-tac-toe game of PLP chapter 12 you examined during the preparation for Lab 5. Explain the essence of its design and its implementation in Prolog.

Show the results to the TA: _____ (initials)

Part 2 (2 points)

The preparation for Lab 5 required you to extend the arithmetic parser included in the Lab 5 download to support exponents. Show that your extended parser works by using it to evaluate the following expressions

- (i) $(2^2)^2$
- (ii) $(3+5)^2 + (7+8)^2$
- (iii) $5^2 * 2^3$

Show the results to the TA: _____ (initials)

Part 3 (2 points)

Run *Your First Proof* of BIT tutorial. Explain the terminology and answer the following questions: What is the meaning of the term context? What are goals and subgoals? How is *intros* tactic used in the proof?

Demonstrate the Coq code you executed to the TA: _____ (initials)

Part 4 (2 points)

Run a selected proof of *going forward* type. Run a selected proof of *going backward* type. Explain the terminology: What are the *going forward* proofs? What are the *going backward* proofs?

Demonstrate the Coq code you executed to the TA: _____ (initials)

Part 5 (2 points)

Run an example of a proof by induction, e.g. a proof of the fact that $n + m = m + n$. Explain why the proof of $n + 0 = n$ requires induction, but the proof of $0 + n = n$ does not.

Demonstrate the Coq code you executed to the TA: _____ (initials)