

Logic 1, WS 2006. Exam theory May 22, 2007

NAME:

MATRIKELNR.:

1. Specify shortly the difference between Mathematics, Mathematical Logic and other sciences.
2. Define inductively the syntax of first order predicate logic.
3. Prove the correctness of the following sequent calculus:
See blackboard
4. Prove the completeness of the calculus given above.
5. Formulate a sequent rule for the case when the goal is a conjunction and prove its correctness using the system given above. Hint: Express conjunction using negation and disjunction.
6. State the inference rule for resolution and describe the resolution method in first order predicate logic.
7. State the correctness of the resolution inference rule in propositional logic and prove it.
8. Explain the notion of interpretation in propositional logic. What is the semantics of a formula?
9. Give sequent inference rules for sequents with an existentially quantified formula in the goal, and for sequents with an existentially quantified formula in the assumptions.

Note: Subject 1 gets 5 points, each of the others gets 10.