



Bookmarks

- ▶ Artificial Intelligence Course: Getting Started
- ▶ Week 1: Introduction to AI
- ▶ Week 2: Intelligent Agents and Uninformed Search
- ▶ Week 3: Heuristic Search
- ▶ Week 4: Adversarial Search and Games
- ▶ Week 5: Machine Learning 1
- ▶ Week 6: Machine Learning 2
- ▶ Week 7: Machine Learning 3
- ▶ Week 8: CSP
- ▶ Week 9: Reinforcement

Week 10: Logical Agents &gt; Week 10 Quiz: Logical Agents &gt; Week 10 Quiz

## Week 10 Quiz

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### Q1

10/10 points (graded)

$$((p \rightarrow q) \wedge (q \rightarrow r)) \rightarrow (p \rightarrow r)$$

Consider the above proposition in propositional logic. Is this proposition a:

☒ tautology? ✓

☐ fallacy?

☐ contingency?


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You have used 1 of 1 attempt

Answers are displayed within the problem

### Q2

10/10 points (graded)

Among the following propositions, which ones are logically equivalent?

☒  $p \leftrightarrow q$  ✓

☐  $(p \wedge \neg q) \wedge \neg(\neg p \rightarrow \neg q)$ 
☒  $\neg(p \wedge \neg q) \wedge (\neg p \rightarrow \neg q)$  ✓

☐  $\neg(p \wedge \neg q) \vee (\neg p \rightarrow \neg q)$ 


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You have used 1 of 1 attempt

## Learning

▼ Week 10:  
Logical Agents

Week 10:  
Suggested  
Readings

10.1 Knowledge-  
based Agents

10.2 The Wumpus  
World

10.3 Logical Agent

10.4 Building  
Propositions

10.5 Inference  
Rules

10.6 Reduced  
Wumpus World

10.7 Model  
Checking and  
Inference

10.8 Theorem  
Proving and Proof  
by Resolution


10.9 Conversion to  
CNF and  
Resolution  
Algorithm

10.10 Forward and  
Backward Chaining

10.11 Propositional  
Logic: summary

10.12 First Order  
Logic

**Week 10 Quiz:  
Logical Agents**

Quiz due Apr 11, 2017  
05:00 IST 

Week 10  
Discussion  
Questions

 Answers are displayed within the problem

### Q3

10/10 points (graded)

Let  $p$  be a proposition in propositional logic.  $p$ : John is not tall and John is thin. What is the  $\neg p$  (negation of  $p$ )?

☐ John is tall or John is thin

☐ John is tall and John is not thin

☐ John is not tall and John is not thin

☒ John is tall or John is not thin ✓



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 Answers are displayed within the problem

### Q4

10/10 points (graded)

The CNF of  $(p \rightarrow q) \rightarrow r$  is:

☐  $(\neg p \vee r) \wedge (\neg q \vee \neg r)$

☒  $(p \vee r) \wedge (\neg q \vee r)$  ✓

☐  $(p \wedge r) \vee (\neg q \wedge r)$



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### Q5

10/10 points (graded)

Given the following KB:

$$KB = \{P \vee Q \vee R, \neg P \vee R, \neg Q\}$$

Using resolution for propositional logic, does  $KB \models R$ ?☒ Yes ✓☐ No

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**i** Answers are displayed within the problem

## Q6

10/10 points (graded)

Given the following  $KB$ :

$$KB = \{P \vee \neg Q, \neg Q \vee R, \neg P \vee \neg R\}$$

using model checking, does  $KB \models Q$ ?☐ Yes☒ No ✓

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You have used 1 of 1 attempt

**i** Answers are displayed within the problem

## Q7

10/10 points (graded)

Which inference rule is used to make this inference?

**If it snows today, the university will close**  
**The university is not closed today**  

---

**It did not snow today**

☐ Modus Ponens

☒ Modus Tollens ✓

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**i** Answers are displayed within the problem

## Q8

10/10 points (graded)

Which inference rule is used to make this inference?

**If it is rainy, then the pool will be closed**  
**It is rainy**  

---

**The pool is closed**

☒ Modus Ponens ✓

☐ Modus Tollens

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You have used 1 of 1 attempt

**i** Answers are displayed within the problem

## Q9

10/10 points (graded)

Check all that apply.

☒ First order logic is more powerful than propositional logical because it can model objects and the relations between them ✓

☐ Inference in propositional logic with horn clauses is sound but not complete

☒ Backward chaining works backwards from the query ✓

☐ Logical agents are black box models because the models they build about the world are not intelligible



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**i** Answers are displayed within the problem

## Q10

0/10 points (graded)

Check all that apply.

☒ Inference can be cast as a search problem ✓

☒ The resolution algorithm uses a proof by contradiction, that is it shows that  $KB \wedge \neg \alpha$  is satisfiable

☒ A horn clause is a logic proposition of the form:  $p_1 \wedge \dots \wedge p_n \rightarrow q$  ✓

☒ Every sentence in propositional logic can be written in Conjunctive Normal Form (CNF) ✓



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