

Quiz: Logical Agents and Inference in AI

Course Code: CS3151

Topic: Logical Agents and Inference Mechanisms

CLO: CLO1 – Understand the key components in the field of artificial intelligence

Total Marks: 20

Submission Deadline: 28-06-2025

Question 1: Logical Agents and Knowledge Representation (5 marks)

- a. What is a logical agent? How does it differ from a simple reflex agent?
- b. Define a knowledge base. How is it used by logical agents?
- c. Briefly explain the role of logic in AI problem-solving.

Question 2: Wumpus World (5 marks)

- a. Describe the Wumpus World environment and its importance in AI.
- b. How do knowledge-based agents make decisions in the Wumpus World?
- c. Explain how logical inference helps an agent safely navigate the Wumpus World.

Question 3: Inference Rules – Modus Ponens and Modus Tollens (4 marks)

- a. Define modus ponens and modus tollens with examples.
- b. How are these rules applied in a knowledge-based agent system?
- c. Give one real-life AI situation where these inference rules could apply.

Question 4: Satisfiability and Chaining Techniques (6 marks)

- a. What is satisfiability in propositional logic, and why is it significant in AI?
- b. Differentiate between forward chaining and backward chaining with examples.
- c. Explain a situation where backward chaining is more effective than forward chaining.