=== QUIZ GENERATION ANALYSIS ===

The course content provided outlines "Fundamentals of Artificial Intelligence: A Guided Exploration" over 6 modules, along with a separate, detailed 4-week Python programming primer. For this quiz, I will focus exclusively on the core AI concepts from the 6 AI modules (Module 1 through Module 6) as requested, aligning with the "Foundation & Analysis" theme. The Python content (Weeks 1-4) is treated as a separate foundational skill for implementation rather than core AI theory.

The analysis identifies key concepts suitable for quick recall, brief definitions, simple comparisons, and short analytical questions, adhering to the 1-2 sentence answer length and foundational difficulty. Examples include defining agent components, distinguishing search algorithm properties, explaining the role of heuristics, or outlining logic components. This ensures the quiz is completable within 10-15 minutes and effectively assesses foundational understanding and analytical thinking without requiring complex problem-solving or extensive writing.

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# Quiz Paper: Foundation & Analysis in Artificial Intelligence

## Instructions for Students:

- Time Limit: 10-15 minutes

- Total Marks: 12 marks (1 mark per question)

- This quiz focuses on fundamental concepts and analytical thinking in classical Artificial Intelligence.

- Answer each question concisely (1-2 sentences maximum).

- Quick recall and understanding are tested.

## Questions:

### Question 1 (1 mark): Quick Definition - Intelligent Agent

Define what an "intelligent agent" is in the context of AI.

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### Question 2 (1 mark): Comparison - Environment Types

Briefly explain the key difference between a "deterministic" and a "stochastic" environment for an AI agent.

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### Question 3 (1 mark): Core Concept - Problem Formulation
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When formulating a problem for AI search, what are the four main components you need to define?

Question 4 (1 mark): Algorithm Characteristics - Uninformed Search

Which uninformed search strategy guarantees finding the optimal solution if step costs are uniform?

Question 5 (1 mark): Role of Heuristics - Informed Search

What is the primary role of a "heuristic function" in informed search algorithms like A* search?

Question 6 (1 mark): Algorithm Goal - Adversarial Search

What is the main objective of the Minimax algorithm in solving adversarial game problems?

Question 7 (1 mark): Components - Constraint Satisfaction Problem

List the three main components that define a Constraint Satisfaction Problem (CSP).

Question 8 (1 mark): Logical Concept - Propositional Logic

What is "entailment" in the context of propositional logic?

Question 9 (1 mark): Distinction - First-Order Logic

Distinguish between a "constant" and a "predicate" in First-Order Logic.

Question 10 (1 mark): Inference Technique - Logical Reasoning

Briefly explain the key difference between "forward chaining" and "backward chaining" as inference mechanisms.

Question 11 (1 mark): Planning Components - Classical AI Planning

Name the three essential components (beyond initial and goal states) that define a classical AI planning problem.

Question 12 (1 mark): Challenges - Multi-Agent Systems

Identify two key challenges faced when designing and implementing Multi-Agent Systems.
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