UNIT-1

1. **Q: What is Artificial Intelligence (AI)?**
   A: AI is the ability of machines to mimic human intelligence and perform tasks.
2. **Q: What are the foundations of AI?**
   A: The foundations of AI include computer science, mathematics, psychology, neuroscience, and linguistics.
3. **Q: When did the history of AI begin?**
   A: AI research began in the 1950s with the aim to create machines that can think.
4. **Q: What is the state of the art in AI today?**
   A: AI today powers technologies like self-driving cars, chatbots, and facial recognition.
5. **Q: What are some benefits of AI?**
   A: AI helps in automation, faster decision-making, and problem-solving.
6. **Q: What are some risks of AI?**
   A: AI risks include job loss, bias in decisions, and loss of human control.
7. **Q: What is an intelligent agent?**
   A: An intelligent agent is a system that senses its environment and takes actions to achieve goals.
8. **Q: What are agents and environments in AI?**
   A: Agents act within environments, which provide the context for their actions.
9. **Q: What is rational behavior in AI?**
   A: Rational behavior means doing the right thing to achieve the best outcome.

10. **Q: What is the nature of environments in AI?**
    A: Environments can be fully or partially observable, static or dynamic, simple or complex.
11. **Q: What is the structure of an agent?**
    A: An agent has components like sensors, actuators, and a decision-making unit.

UNIT-2

1. **Q: How do we solve problems in AI?**
   A: We solve problems in AI by searching through possible solutions.
2. **Q: What is a problem-solving agent?**
   A: A problem-solving agent plans and acts to reach a goal.
3. **Q: What is an example of a problem in AI?**
   A: Finding the shortest path in a map is a common AI problem.
4. **Q: What is a search algorithm?**
   A: A search algorithm explores paths to find a solution to a problem.
5. **Q: What are uninformed search strategies?**
   A: Uninformed searches don't use any extra knowledge and explore blindly.
6. **Q: What are informed (heuristic) search strategies?**
   A: Informed searches use hints or heuristics to find solutions faster.
7. **Q: What is a heuristic function?**
   A: A heuristic function estimates how close a state is to the goal.
8. **Q: What is search in complex environments?**
   A: It deals with uncertain or changing environments that need smarter search.

9. **Q: What is local search in AI?**
   A: Local search looks around the current state to find a better solution.
10. **Q: What are optimization problems in AI?**
    A: These are problems where we aim to find the best solution from many options.

UNIT-3

1. **Q: What is Game Theory in AI?**
   A: Game Theory is the study of decision-making in competitive situations.
2. **Q: What are optimal decisions in games?**
   A: These are the best possible moves that lead to winning or the best outcome.
3. **Q: What is Alpha–Beta Tree Search?**
   A: It is a smarter version of minimax that skips unnecessary moves.
4. **Q: What is Monte Carlo Tree Search?**
   A: It is a game search method using random simulations to decide the best move.
5. **Q: What are stochastic games?**
   A: These are games with randomness involved in the outcomes.
6. **Q: What are partially observable games?**
   A: In these games, players have limited information about the state.
7. **Q: What are the limitations of game search algorithms?**
   A: They can be slow, use lots of memory, and may not handle complex games well.
8. **Q: What are Constraint Satisfaction Problems (CSP)?**
   A: CSPs are problems where we must find values that satisfy given conditions.

9. **Q: What is constraint propagation in CSPs?**
   A: It is reducing choices by using constraints to simplify the problem.
10. **Q: What is backtracking search in CSPs?**
    A: It is a method of trying possible values and going back when a dead end is reached.

UNIT-4

Q: What is a logical agent?
A: A logical agent uses logic to make decisions and solve problems.

Q: What is a knowledge-based agent?
A: It is an agent that uses stored knowledge to make intelligent choices.

Q: What is the Wumpus World in AI?
A: The Wumpus World is a simple game used to study logical agents.

Q: What is logic in AI?
A: Logic is a way to represent facts and rules to reason about them.

Q: What is propositional logic?
A: Propositional logic uses simple true/false statements to represent knowledge.

Q: What is propositional theorem proving?
A: It is checking if a certain conclusion follows from given facts.

Q: What is effective propositional model checking?
A: It checks all possible truth combinations to verify logical statements.

Q: What are agents based on propositional logic?
A: These agents use true/false logic to make decisions.

Q: What is first-order logic?
A: First-order logic is a more powerful logic that includes objects and their relationships.

Q: What is syntax and semantics in first-order logic?
A: Syntax is the rules for writing logic, and semantics is the meaning behind it.

Q: How is first-order logic used in AI?
A: It is used to represent complex knowledge about the world.

Q: What is knowledge engineering in first-order logic?
A: It is the process of creating knowledge bases using first-order logic.

UNIT-5

Q: What is inference in first-order logic?
A: It is the process of drawing conclusions from facts using rules.

Q: How is propositional inference different from first-order inference?
A: Propositional inference uses simple facts, while first-order inference uses objects and relations.

Q: What is unification in first-order logic?
A: Unification matches patterns in logic expressions to apply rules.

Q: What is forward chaining?
A: Forward chaining starts with known facts and applies rules to find new facts.

Q: What is backward chaining?
A: Backward chaining starts with a goal and works backward to find supporting facts.

Q: What is resolution in logic?
A: Resolution is a method of proving a statement by contradiction.

Q: What is knowledge representation in AI?
A: It is how knowledge is stored and structured for use by AI.

Q: What is ontological engineering?
A: It is building structured frameworks to represent knowledge clearly.

Q: What are categories and objects in AI?
A: They are ways to group things and define their properties.

Q: What are events in knowledge representation?
A: Events represent things that happen and can change the world state.

Q: What are mental objects and modal logic?
A: Mental objects are beliefs and desires, and modal logic helps reason about them.

Q: What are reasoning systems for categories?
A: They help AI understand and infer relationships between different groups.

Q: What is reasoning with default information?
A: It means making logical assumptions when complete information is missing.

UNIT-6

Q: What is automated planning in AI?
A: Automated planning is the process of creating a sequence of actions to reach a goal.

Q: What is classical planning?
A: Classical planning assumes a known, predictable environment with clear goals.

❓ Q: What are algorithms for classical planning?
A: These are step-by-step methods to create plans, like forward and backward search.

❓ Q: What are heuristics for planning?
A: Heuristics help choose better actions faster during planning.

❓ Q: What is hierarchical planning?
A: Hierarchical planning breaks big plans into smaller sub-plans.

❓ Q: What is planning in nondeterministic domains?
A: It involves making plans where outcomes are uncertain or random.

❓ Q: Why are time, schedules, and resources important in planning?
A: They help manage when and how actions are done within limits.

❓ Q: What is analysis of planning approaches?
A: It means comparing different planning methods to see which works best.

❓ Q: What are the limits of AI?
A: AI has limits like lack of common sense, creativity, and emotional understanding.

❓ Q: What is the importance of ethics in AI?
A: Ethics ensures AI is used safely, fairly, and responsibly.

❓ Q: What is the future of AI?
A: The future of AI includes smarter machines, better automation, and human-AI collaboration.

❓ Q: What are AI components?
A: AI components include perception, learning, reasoning, and action.

❓ Q: What are AI architectures?
A: AI architectures are the overall structures that define how an AI system works.