

1. Which of the following is a problem in representing knowledge?

- a) Lack of expressiveness
- b) Difficulty in manipulation
- c) Limited storage capacity
- d) All of the above

Answer: d) All of the above

Explanation: Representing knowledge can be challenging due to limitations in expressiveness, difficulties in manipulation, and constraints on storage capacity.

2. Which logic is based on propositions representing facts and their relationships?

- a) Propositional logic
- b) Predicate logic
- c) Fuzzy logic
- d) Modal logic

Answer: a) Propositional logic

Explanation: Propositional logic deals with propositions representing facts and their relationships using logical operators.

3. Predicate logic allows for the representation of:

- a) Facts and relationships using propositions
- b) Quantified statements about objects and their properties

- c) Uncertain and vague information
- d) Temporal reasoning

Answer: b) Quantified statements about objects and their properties

Explanation: Predicate logic enables the representation of quantified statements about objects, their properties, and relationships between them.

4. Which of the following is a key difference between propositional and predicate logic?

- a) Propositional logic allows for quantified statements.
- b) Predicate logic deals with facts using logical operators.
- c) Propositional logic is more expressive than predicate logic.
- d) Predicate logic represents facts about specific objects.

Answer: a) Propositional logic allows for quantified statements.

Explanation: Propositional logic deals with propositions representing facts, while predicate logic allows for quantified statements about objects and their properties.

5. What is the process of deriving new information from existing knowledge by applying inference rules?

- a) Resolution
- b) Refutation
- c) Deduction
- d) Theorem proving

Answer: c) Deduction

Explanation: Deduction involves deriving new information from existing knowledge using inference rules.

6. Which reasoning approach assumes that existing knowledge is true unless proven otherwise?

- a) Monotonic reasoning
- b) Nonmonotonic reasoning
- c) Probabilistic reasoning
- d) Fuzzy reasoning

Answer: a) Monotonic reasoning

Explanation: Monotonic reasoning assumes that existing knowledge remains true unless explicitly contradicted.

7. Probabilistic reasoning is based on:

- a) Certainty
- b) Uncertainty
- c) Fuzzy logic
- d) Temporal logic

Answer: b) Uncertainty

Explanation: Probabilistic reasoning deals with uncertainty by assigning probabilities to

different outcomes.

8. Which theorem is fundamental to probabilistic reasoning and is used to update probabilities based on new evidence?

- a) Descartes' theorem
- b) Newton's theorem
- c) Bayes' theorem
- d) Euler's theorem

Answer: c) Bayes' theorem

Explanation: Bayes' theorem is essential in probabilistic reasoning for updating probabilities based on new evidence.

9. Semantic networks are used to represent knowledge using:

- a) Nodes and links
- b) Propositions and logical operators
- c) Rules and facts
- d) Equations and variables

Answer: a) Nodes and links

Explanation: Semantic networks represent knowledge using nodes to represent concepts and links to represent relationships between them.

10. Which knowledge representation technique focuses on organizing knowledge into

hierarchical structures?

- a) Scripts
- b) Schemas
- c) Frames
- d) Conceptual dependency

Answer: c) Frames

Explanation: Frames organize knowledge into hierarchical structures, where each frame represents a category of objects or concepts.

11. Fuzzy logic is particularly useful in dealing with:

- a) Certainty
- b) Uncertainty
- c) Temporality
- d) Causality

Answer: b) Uncertainty

Explanation: Fuzzy logic handles uncertainty by allowing for degrees of truth, which is valuable in situations where information is imprecise or vague.

12. Which reasoning approach considers multiple possible outcomes and their probabilities?

- a) Forward reasoning
- b) Backward reasoning

- c) Monotonic reasoning
- d) Probabilistic reasoning

Answer: d) Probabilistic reasoning

Explanation: Probabilistic reasoning considers multiple possible outcomes and their associated probabilities to make decisions or draw conclusions.

13. Backward reasoning involves:

- a) Starting from the goals and working backward to the initial conditions
- b) Starting from the initial conditions and working forward to the goals
- c) Evaluating multiple possible outcomes
- d) Assigning probabilities to uncertain events

Answer: a) Starting from the goals and working backward to the initial conditions

Explanation: Backward reasoning starts from the desired goals and works backward to determine the initial conditions required to achieve those goals.

14. Which reasoning approach allows for revising existing beliefs in light of new evidence?

- a) Monotonic reasoning
- b) Nonmonotonic reasoning
- c) Deductive reasoning
- d) Inductive reasoning

Answer: b) Nonmonotonic reasoning

Explanation: Nonmonotonic reasoning permits revising existing beliefs in response to new evidence or information, without necessarily discarding the entire knowledge base.

15. Forward chaining and backward chaining are strategies used in:

- a) Resolution
- b) Refutation
- c) Deduction
- d) Induction

Answer: c) Deduction

Explanation: Forward chaining and backward chaining are deduction strategies used to derive new information from existing knowledge by applying inference rules.