# Objective Questions

**UNIT-1**

1) What is Artificial Intelligence (AI)?
2) What is meant by an AI technique?
3) Define Strong AI.
4) Define Weak AI.
5) What is an intelligent agent in AI?
6) What is meant by an environment in the context of AI agents?
7) What is a problem space in Artificial Intelligence?
8) What is state space search?
9) What is the Water Jug Problem and why is it used in AI?
10) What are production systems in Artificial Intelligence?

**UNIT-2**

1) What is Knowledge Representation in Artificial Intelligence?
2) What is meant by representation and mapping in knowledge representation?
3) List any two approaches to knowledge representation.
4) How are simple facts represented using predicate logic? Give one example.
5) What is an ISA relationship?
6) Define resolution in predicate logic.
7) What is the difference between procedural knowledge and declarative knowledge?
8) What is meant by forward reasoning?
9) Define non-monotonic reasoning.
10) What is the main difference between Depth-First Search (DFS) and Breadth-First Search (BFS)?

**UNIT-3**

1) What is the Mini–max search procedure in game playing?
2) What is the purpose of alpha–beta cutoffs in game tree search?
3) What is meant by iterative deepening in game playing?
4) What is the Blocks World problem in AI planning?
5) List any two components of a planning system.
6) What is goal stack planning?
7) What is nonlinear planning?
8) What is meant by hierarchical planning?
9) What is understanding in Artificial Intelligence?
10) Why is understanding considered difficult in AI?

**UNIT-4**

1. What is Natural Language Processing (NLP)?
2. What is meant by syntactic processing in NLP?
3. Define semantic analysis.
4. What is discourse processing?
5. What is pragmatic processing in NLP?
6. What is statistical natural language processing?
7. What is spell checking in NLP?
8. What is rote learning in Artificial Intelligence?

9. What is meant by learning from examples (induction)?
10. What is neural network learning?

**UNIT-5**

1) What is an expert system?
2) What is meant by the architecture of an expert system?
3) What is the role of a knowledge base in an expert system?
4) What is an inference engine?
5) What is domain knowledge?
6) How is knowledge represented in expert systems?
7) What is an expert system shell?
8) What is knowledge acquisition?
9) What are rule-based expert systems?
10) List any two types of expert systems.

# Subjective Questions

**UNIT-1**

1) Define Artificial Intelligence and explain its goals.
2) Explain AI techniques and their importance in problem solving.
3) Differentiate between Strong AI and Weak AI with suitable examples.
4) What is an intelligent agent? Describe the relationship between agents and environments.
5) Explain the levels of the model in AI problem solving.
6) What is a problem space? Explain how problems are represented in AI.
7) Describe state space search and explain the Water Jug Problem as an example.
8) Explain the architecture of a production system with a neat diagram.
9) Discuss the characteristics of AI problems and how they influence search strategies.
10) What are the issues in the design of search programs? Explain any four in detail.

**UNIT-2**

1) Explain Knowledge Representation and discuss the importance of representations and mappings in AI.
2) Describe the various approaches to knowledge representation with suitable examples.
3) Explain how predicate logic is used to represent:
4) Discuss computable functions and predicates in predicate logic with examples.
5) Explain the resolution principle and natural deduction in predicate logic.
6) Compare procedural knowledge and declarative knowledge. Explain their role in logic programming.
7) Explain forward reasoning and backward reasoning. Compare them with suitable examples.
8) What is symbolic reasoning under uncertainty? Explain non-monotonic reasoning and its need.
9) Discuss different logics for non-monotonic reasoning and explain the implementation issues involved.

10) Explain how uncertainty handling can be used to augment a problem solver. Also explain Depth-First Search and Breadth-First Search algorithms in detail.

**UNIT-3**

1) Explain the Mini–max search procedure with a suitable example.
2) Describe how alpha–beta pruning improves the efficiency of the Mini–max algorithm.
3) Explain the concept of iterative deepening and discuss its advantages.
4) Explain the Blocks World problem and its role in AI planning.
5) Discuss the components of a planning system with neat diagrams.
6) Explain the goal stack planning approach with an example.
7) Describe nonlinear planning using constraint posting in detail.
8) Explain hierarchical planning and compare it with classical planning methods.
9) What is meant by understanding in AI? Explain the factors that make understanding hard.
10) Explain understanding as constraint satisfaction with a suitable example.

**UNIT-4**

1. Explain the introduction and scope of Natural Language Processing in Artificial Intelligence.
2. Describe syntactic processing techniques used in NLP with examples.
3. Explain semantic analysis and discuss its role in understanding natural language.
4. Discuss discourse and pragmatic processing and explain their importance in NLP.
5. Explain the principles and applications of statistical natural language processing.
6. Describe the spell checking process and techniques used in NLP.
7. Explain rote learning and learning by taking advice with suitable examples.
8. Discuss learning in problem-solving and its role in improving AI performance.
9. Explain learning from examples and discuss induction, explanation-based learning, discovery, and analogy.
10. Explain formal learning theory and discuss neural network learning and genetic learning in detail.

**UNIT-5**

1) Explain the architecture of an expert system and describe the role of each component.
2) Discuss the roles and applications of expert systems in different domains.
3) Explain how domain knowledge is represented in expert systems with suitable examples.
4) Describe different knowledge representation techniques used in expert systems.
5) What are expert system shells? Explain their advantages and limitations.
6) Explain the knowledge acquisition process and discuss the difficulties involved.
7) Describe the various types of expert systems with examples.
8) Explain the working of an expert system using a neat block diagram.
9) Discuss the importance of knowledge engineering in expert system development.
10) Explain the life cycle of an expert system from problem identification to maintenance.