Question Bank:

UNIT-I

S.No	Questions	BT	CO	PO
	Part –A(Short Answer Questions)			
1	Define knowledge in the context of AI.	L1	CO1	PO1
2	What is knowledge representation?	L4	CO1	PO2
3	What is reasoning? Give an example.	L3	CO1	PO1
4	Why is knowledge representation important in AI systems?	L2	CO2	PO1
5	Mention any two roles of logic in AI.	L1	CO1	PO2
6	**What is formal logic?**	L4	CO2	PO2
7	List any two varieties of logic used in AI.	L1	CO3	PO2
8	What is propositional logic?	L1	CO2	PO1
9	What is predicate logic?	L1	CO1	PO1
10	Define "measure" in logic.	L2	CO2	PO1
	Part– B(Long Answer Questions)			
11 a)	Explain the key concepts: knowledge, representation, and reasoning with suitable examples.	L4	CO2	PO1, 2
b)	Discuss the importance of knowledge representation and reasoning (KRR) in artificial intelligence. Why do AI systems need KRR?	L5	CO2	PO2
12 a)	Describe the role of logic in AI. How is logic used to represent and manipulate knowledge?	L6	CO1	PO2, 3
b)	Write a detailed note on the historical background of logic. Mention major contributors and their contributions.	L3	CO2	PO3
13 a)	Explain how knowledge is represented in logic. Discuss with examples from propositional and predicate logic.	L1	CO3	PO3, 4
b)	What are the varieties of logic used in AI? Explain propositional logic, predicate logic, modal logic, fuzzy logic, and default logic.	L2	CO2	PO4
14 a)	Explain the different types, names, and measures used in various logical systems.	L3	CO3	PO5
b)	Write an essay on "Unity Amidst Diversity" in logic. How do different logical systems maintain consistency while serving different purposes?	L2	CO1	PO3
15 a)	Compare and contrast different reasoning techniques: deductive, inductive, abductive, and non-monotonic reasoning.	L3	CO2	PO2
b)	Discuss in detail how logic forms the foundation of intelligent systems. Include examples of real-world applications.	L4	CO1	PO4

UNIT-II

S. No		Questions	BT	CO	PO
Part –A(Short Answer Questions)					
1		What is ontology in the context of knowledge representation?	L3	CO1	PO2
2		Define ontological categories with an example.	L1	CO2	PO3
3		What is the philosophical background of ontology?	L2	CO3	PO5
4		What are top-level ontological categories?	L3	CO1	PO7
5		Give two examples of physical entities in an ontology.	L4	CO2	PO1
6		What is an abstraction in ontology?	L5	CO2	PO5
7		Differentiate between sets and collections.	L3	CO3	PO3
8		What is the role of "types" in an ontology?	L1	CO1	PO7
9		Define "categories" in an ontological system.	L3	CO1	PO9
10		How is space represented in ontology?	L2	CO2	PO4
Part– B(Long Answer Questions)					
11	a)	Explain ontology and discuss the importance of ontological categories in AI.	L3	CO1	PO2
	b)	Describe the philosophical background of ontology. Include major philosophers and their contributions.	L2	CO2	PO4
12	a)	Discuss the top-level ontological categories and explain their role in structuring knowledge.	L4	CO1	PO6
	b)	How are physical entities described in ontology? Explain with examples.	L3	CO2	PO7
13	a)	What are abstractions in ontology? Discuss different kinds of abstractions used in AI systems.	L1	CO1	PO5
	b)	Compare and contrast sets, collections, types, and categories with suitable examples.	L2	CO3	PO7
14	a)	Explain the representation of space and time in ontological systems. Why are they fundamental?	L2	CO2	PO5, 6
	b)	Write a detailed note on ontological modeling of complex systems.	L3	CO1	PO6
15	a)	Discuss how ontology helps in organizing and representing both physical and abstract entities.	L4	CO2	PO7
	b)	Explain various methods used to classify entities within an ontological framework.	L1	CO3	PO8
16	a)	Describe the role of ontology in semantic web technologies and knowledge-based systems.	L2	CO2	PO4
	b)	Evaluate the challenges in defining top-level categories for a universal ontology.	L3	CO2	PO4

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UNIT-III

S. No		Questions	BT	CO	PO
Part –A(Short Answer Questions)					
1		What is knowledge engineering?	L2	CO1	PO2
2		Define knowledge representation in AI.	L3	CO2	PO4
3		What are frames in knowledge representation?	L2	CO3	PO5
4		What is the purpose of representing structure in frames?	L3	CO3	PO6, 7
5		What are rules in knowledge-based systems?	L2	CO1	PO8
6		Differentiate between rules and data.	L1	CO2	PO9
7		What is an object-oriented knowledge representation system?	L3	CO4	PO11
8		Give an example of how objects represent knowledge	L1	CO5	PO10
9		What is natural language semantics?	L2	CO3	PO8
10		Why is semantics important in natural language processing?	L1	CO2	PO9
Part– B(Long Answer Questions)					
11	a)	Explain knowledge engineering and describe its phases in building knowledge-based systems.	L3	CO3	PO10
	b)	Discuss frames as a knowledge representation method. Explain their structure and advantages.	L1	CO1	PO1
12	a)	Describe how rules and data are used together in expert systems. Provide suitable examples.	L2	CO2	PO1
	b)	Explain object-oriented systems for representing knowledge. How does inheritance help in such systems?	L3	CO3	PO9
13	a)	Elaborate on natural language semantics. Discuss lexical, syntactic, and semantic levels.	L1	CO1	PO8
	b)	Explain the different levels of representation in AI with examples.	L2	CO3	PO5
14	a)	Compare rule-based and frame-based knowledge representation with suitable examples.	L3	CO4	PO9
	b)	How does object-oriented representation differ from traditional symbolic representation? Explain with examples.	L1	CO3	PO3
15	a)	Describe the major challenges in knowledge engineering.	L2	CO1	PO6
	b)	Explain the role of semantics in improving natural language understanding systems.	L4	CO2	PO9
16	a)	Discuss the importance of combining multiple representation methods in modern AI systems.	L1	CO3	PO5
	b)	Explain the concept of structural inheritance in frames and object-oriented representations.	L1	CO1	PO3

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UNIT-IV

S. No		Questions	BT	CO	PO
Part –A(Short Answer Questions)					
1		What is a process in knowledge representation?	L1	CO2	PO2
2		Define time in the context of processes.	L2	CO3	PO4
3		What is an event? Give an example.	L3	CO2	PO7
4		What is a situation in process modeling?	L1	CO1	PO5
5		Write two differences between events and situations.	L4	CO2	PO5
6		What is meant by classification of processes?	L4	CO1	PO3
7		Define a procedure with an example.	L4	CO3	PO8
8		What are concurrent processes?	L4	CO1	PO6
9		What is computation in AI?	L1	CO2	PO3
10		Define constraint satisfaction.	L1	CO3	PO9
Part– B(Long Answer Questions)					
11	a)	Explain the concepts of times, events, and situations in process modeling with suitable examples.	L1	CO1	PO3
	b)	Discuss the classification of processes and explain how different types of processes are used in AI.	L1	CO2	PO5
12	a)	Explain the relationship between processes and histories. Give real-world examples.	L2	CO2	PO7
	b)	Discuss concurrent processes. Explain their importance in AI systems and provide examples.	L3	CO1	PO9
13	a)	What is computation in the context of AI? Explain how computation relates to processes and actions.	L1	CO2	PO11
	b)	Explain constraint satisfaction in detail. Describe steps involved in solving CSPs with examples.	L4	CO3	PO5, 7
14	a)	How do processes represent change? Explain with suitable models and real-life scenarios.	L1	CO1	PO4
	b)	Explain the syntax and semantics of contexts in knowledge representation.	L1	CO2	PO7
15	a)	Discuss first-order reasoning in contexts. Explain why contexts are necessary for structured reasoning.	L1	CO2	PO1
	b)	Describe modal reasoning in contexts with examples of necessity and possibility.	L1	CO1	PO3
16	a)	Explain the concept of encapsulating objects in contexts. How does it help in modular reasoning?	L3	CO2	PO5
	b)	Write a detailed note on the importance of contexts in AI, including their applications in knowledge bases and reasoning systems.	L3	CO3	PO3

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UNIT-V

S. No		Questions	BT	CO	PO
Part –A(Short Answer Questions)					
1		What is vagueness in knowledge representation?	L4	CO1	PO4
2		Define uncertainty with an example.	L4	CO2	PO6
3		What is randomness in AI?	L4	CO3	PO7
4		What is ignorance in knowledge modeling?	L4	CO1	PO7
5		Mention two limitations of classical logic.	L4	CO2	PO2
6		What is fuzzy logic?	L4	CO1	PO1
7		Give one example of language patterns used in knowledge modeling.	L4	CO3	PO5
8		Define a conceptual schema.	L1	CO2	PO9
9		What does accommodating multiple paradigms mean?	L1	CO3	PO2
10		What is meant by relating different knowledge representations?	L1	CO1	PO3
Part– B(Long Answer Questions)					
11	a)	Explain vagueness, uncertainty, randomness, and ignorance. How are they different from each other?	L2	CO2	PO8
	b)	Discuss the major limitations of classical logic in representing real-world knowledge.	L1	CO3	PO9
12	a)	Write a detailed note on fuzzy logic. Explain how it handles imprecision with examples.	L4	CO1	PO6
	b)	Explain nonmonotonic logic. Why is it important for reasoning in dynamic environments?	L1	CO3	PO10
13	a)	Explain the importance of sharing ontologies in distributed and collaborative systems.	L1	CO3	PO4
	b)	What is a conceptual schema? Explain its components with examples.	L3	CO4	PO2
14	a)	Discuss how multiple paradigms can be accommodated in a unified knowledge representation system.	L1	CO2	PO9
	b)	Explain methods of relating different knowledge representations. Provide suitable examples.	L1	CO3	PO1
15	a)	Write a detailed note on language patterns used in knowledge acquisition.	L1	CO1	PO2
	b)	Discuss the various tools used for knowledge acquisition and their importance.	L1	CO3	PO9
16	a)	Explain the process of knowledge sharing, including challenges in interoperability and standardization.	L2	CO1	PO4
	b)	Compare manual, semi-automatic, and automatic knowledge acquisition techniques.	L4	CO2	PO6

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