Subject Code: BAI 205	Subject: Neural Networks and Artificial Intelligence
Time :3 Hours	Maximum Marks: 60

Note: Q1 is compulsory. Attempt one question each from the Units I, II, III & IV.

Q1		(2.5*8=20)	CO Mapping
a)	Explain the concept of 'search knowledge' in the context of AI and provide one example of its use in problem-solving.	(2.5)	CO1
b)	What are intelligent agents? Describe the role of agents in the AI system architecture.	(2.5)	CO1
c)	Explain the Means-End Analysis technique with an example of problem-solving in AI.	(2.5)	CO2
d)	Analyze the significance of alpha-beta pruning in improving the performance of Minimax in decision-making systems.	(2.5)	CO2
e)	What is a conceptual dependency graph? Demonstrate its application in representing natural language sentences.	(2.5)	CO3
f)	Explain how semantic networks can be used for reasoning.	(2.5)	CO3
g)	What are radial basis function networks? Explain their working and significance in AI applications.	(2.5)	CO4
h)	Explain the role of activation functions in neural networks. Compare commonly used activation functions with examples.	(2.5)	CO4
	UNIT I		CO Mapping
Q2	Compare informed and uninformed search strategies. Evaluate their effectiveness in solving a given problem with an example.	(10)	CO1
Q3	Explain the functionality of different types of intelligent agents. Discuss their relevance in designing autonomous systems.	(10)	CO1
	UNIT - II		CO Mapping
Q4	Define informed search strategies and explain how heuristics influence their efficiency. Further, Explain the A* algorithm in detail.	(10)	CO2
Q5	Define constraint satisfaction problems (CSP). Solve a real-world problem (e.g., Sudoku) using CSP techniques.	(10)	CO2
	UNIT III		CO Mapping

1

Q6	Discuss the principles of Forward Chaining and Backward Chaining within Rule-Based Systems, emphasizing their distinctions and real-world use cases.	(10)	CO3
Q7	Explain how predicate logic extends propositional logic for knowledge representation. Discuss its application in knowledge representation.	(10)	CO3
UNIT IV			CO Mapping
Q8	Compare single-layer perceptron with multi-layer perceptron. Explain how backpropagation improves learning.	(10)	CO4
Q9	Describe the learning paradigms in AI: supervised, unsupervised, and reinforcement learning. Provide real-world examples for each.	(10)	CO4