



Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S3 (S) Examinations May 2026 (2024 Scheme)

Course Code: PCAIT302

Course Name: FOUNDATIONS OF ARTIFICIAL INTELLIGENCE

Max. Marks: 60

Duration: 2 hours 30 minutes

PART A

(Answer all questions. Each question carries 3 marks)

		CO	Marks
1	Define an intelligent agent. Explain the role of performance measure.	CO1	(3)
2	Distinguish between deterministic and stochastic environments with examples.	CO1	(3)
3	Summarize the concept of Uniform Cost Search and its distinction from Breadth-First Search	CO2	(3)
4	Define Greedy Best First Search. Mention its limitations.	CO2	(3)
5	Describe the Minimax algorithm along with its underlying assumptions.	CO3	(3)
6	Define Constraint Satisfaction Problem (CSP) with an example.	CO3	(3)
7	What is knowledge representation? List any two techniques.	CO4	(3)
8	Explain forward chaining with a simple example.	CO4	(3)

PART B

(Answer any one full question from each module, each question carries 9 marks)

Module -1

- 9 a) Explain different types of intelligent agents with suitable examples. CO1 (5)

- b) Discuss the properties of task environments in AI. CO1 (4)
- 10 a) Explain the concept of rationality and bounded rationality. CO1 (6)
- b) Describe the structure of a simple reflex agent. CO1 (3)

Module -2

- 11 a) Explain Depth Limited Search and Iterative Deepening Search. CO2 (6)
- b) Compare DFS and IDS in terms of completeness and optimality. CO2 (3)
- 12 a) Explain Greedy Best First Search with an example. CO2 (5)
- b) Compare Greedy Search and A* search CO2 (4)

Module -3

- 13 a) Explain Alpha-Beta pruning with a suitable game tree. CO3 (6)
- b) Discuss the limitations of Minimax algorithm. CO3 (3)
- 14 a) Formulate a CSP for Sudoku or Map Coloring problem. CO3 (5)
- b) Explain arc consistency algorithm (AC-3). CO3 (4)

Module -4

- 15 a) Represent a real-world problem using propositional logic. CO4 (3)
- b) Explain backward chaining with example. CO4 (3)
- c) Discuss limitations of propositional logic. CO4 (3)

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| 16 | a) | Explain quantifiers in first-order logic with examples. | CO4 | (3) |
| | b) | Describe resolution in first-order logic | CO4 | (3) |
| | c) | Explain steps involved in knowledge acquisition for expert systems | CO4 | (3) |
