Name:.....
Roll No:.....

MAR ATHANASIUS COLLEGE OF ENGINEERING (AUTONOMOUS),
KOTHAMANGALAM - 686666
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
B.TECH SECOND SERIES EXAMINATION, OCTOBER 2026 (S7 CS)
CST 401 ARTIFICIAL INTELLIGENCE

Max. Marks: 40 Duration: 1.5 Hours

PART A

Answer all questions. Each question carries 3 marks.

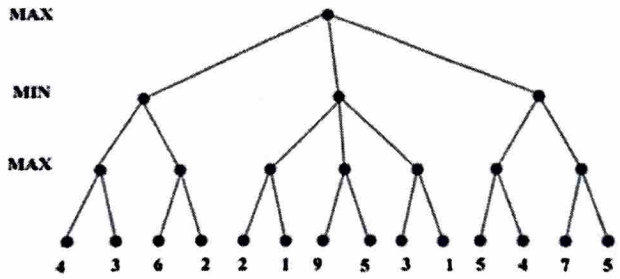
1. **Explain** the properties of min-max algorithm. (CO3)
2. **How** can you use arc consistency to reduce domain size? Explain with an example (CO3)
3. **Describe** Knowledge based agent? How it works? (CO4)
4. **Distinguish** between supervised and unsupervised learning. (CO5)

PART B

Answer all questions. Each question carries 14 marks.

5. (a) **Explain** Alpha-Beta Pruning.Perform alpha beta pruning on the minimax tree given below.

(CO3)(8 marks)



(b) **Solve** the following crypt arithmetic problem by hand, using the strategy of backtracking with forward checking and the MRV heuristic.

SEND + MORE = MONEY.

(CO3) (6 marks)

P.T.O.

VISION

To mould competent computing professionals, innovators, and leaders guided by ethical values and committed to technological advancement and sustainable societal development.

MISSION

- Provide quality education through strong theoretical foundations, experiential learning, and exposure to emerging computing technologies.
- Cultivate critical thinking, research aptitude, and innovation through problem-based learning, industry interaction, and research initiatives.
- Foster ethical values, leadership, social responsibility, and an aspiration for lifelong learning through professional practices, teamwork, and mentoring.

6. (a) **What** do you mean by Conjunctive Normal Form? List the steps for converting a propositional logic statement to CNF.
Convert $(P \rightarrow Q) \rightarrow ((Q \rightarrow R) \rightarrow (P \rightarrow R))$ to CNF using these rules. (CO4)(8 marks)

(b) **Describe** how knowledge can be represented using Propositional Logic with an example. (CO4) (6 marks)

Question No.	1	2	3	4	5 a	5 b	6 a	6 b	
CO Mapping	3	3	4	5	3	3	4	4	Total Marks
Bloom Taxonomy Level	2	3	2	3	3	3	3	2	
Max. Mark	3	3	3	3	8	6	8	6	40

	Prepared By	Scrutinized By	Approved By
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Date	28/9/2026	28/9/2026	28/9/2026