

Code No.: AI401PC

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CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II-B.TECH-II-Semester End Examinations (Supply) - February- 2024
ARTIFICIAL INTELLIGENCE
(CSM)

[Time: 3 Hours]

[Max. Marks: 70]

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

(20 Marks)

1. a) Explain the concept of an agent in the context of AI. [2M]
- b) Define the term 'Problem-solving agent' in AI. [2M]
- c) Explain the basic Principles of Bayes' Theorem. [2M]
- d) What is the role of evaluation functions in Minimax search? [2M]
- e) Compare and contrast frame-based and rule-based knowledge representation. [2M]
- f) Explain the challenges in representing knowledge in a computer system. [2M]
- g) What is Learning? Mention its importance in cognitive development. [2M]
- h) Examine the limitations of relying solely on Rote Learning in educational settings. [2M]
- i) What is the primary purpose of representing domain knowledge in Expert Systems? [2M]
- j) In the context of expert systems, what does the term "shell" refer to? [2M]

PART-B

(50 Marks)

2. Describe the Iterative Deepening strategy in depth-first search. What are the advantages of using this approach in certain situations? [10M]
- OR**
3. Discuss A* search algorithm and explain how it combines the advantages of both uniform-cost search and Greedy best-first search? [10M]
 4. Explain Minimax algorithm. Discuss an example of applying Minimax to a simple game like Tic-Tac-Toe. [10M]
- OR**
5. Describe the process of constructing search trees in the context of problem-solving using a specific example. [10M]
 6. Develop a case study where Bayesian networks are applied to model and solve a real-world problem. [10M]
- OR**
7. Define non-monotonic reasoning. Discuss with examples of situations where non-monotonic reasoning is more suitable than monotonic reasoning. [10M]
 8. Discuss overall role of Learning in human development and decision-making. [10M]
- OR**
9. Explain the key Principles of Winston's Learning Program, with one case study. [10M]
 10. Discuss the challenges associated with representing uncertain or incomplete knowledge in Expert Systems. [10M]
- OR**
11. Define and explain the concept of Case-Based Reasoning (CBR) in the context of expert systems with example. [10M]
