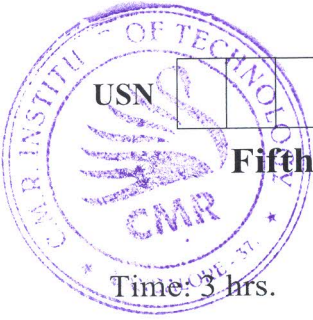


# CBCS SCHEME



21AI54

## Fifth Semester B.E. Degree Examination, Dec.2023/Jan.2024 Principles of Artificial Intelligence

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. Define AI. Explain the foundation of AI in detail. (10 Marks)  
b. Explain the history of AI in detail. (10 Marks)

OR

- 2 a. Briefly explain the properties of task environment. (10 Marks)  
b. Explain the following with respect to structure of agents:  
i) Simple reflex agents ii) Model-based reflex agents iii) Utility-based agents. (10 Marks)

### Module-2

- 3 a. Explain Goal formulation and problem formulation with examples. (10 Marks)  
b. Discuss problems that uses problem solving methods. (10 Marks)

OR

- 4 a. Explain BFS, DFS and Depth-limited search along with example. (10 Marks)  
b. Discuss the different solutions and metrics for searching. (10 Marks)

### Module-3

- 5 a. Explain A\* search and Memory-bounded heuristic search with example. (10 Marks)  
b. Discuss Heuristic functions in detail. (10 Marks)

OR

- 6 a. Explain the propositional logic syntax and semantics. (10 Marks)  
b. Explain the following with examples :  
i) Logical Equivalence ii) Inference rules iii) Horn clauses (10 Marks)

### Module-4

- 7 a. Explain the syntax and semantics of first-order logic. (10 Marks)  
b. Explain the following with respect to first-order logic:  
i) Assertions and queries ii) Numbers, Sets and Lists iii) Wumpus world (10 Marks)

OR

- 8 a. Explain Unification and Simple forward chaining along with the examples. (10 Marks)  
b. Explain backward chaining algorithm with example. (10 Marks)

### Module-5

- 9 a. Explain Basic Probability Notation in detail. (10 Marks)  
b. Explain Inference using Full Joint distributions. (10 Marks)

OR **CMRIT LIBRARY**

- 10 a. Explain Baye's rule and its use in detail. **BANGALORE - 560 037** (10 Marks)  
b. Explain Independence with respect to Quantifying uncertainty. (10 Marks)

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