

CBCS SCHEME

21AI54



Fifth Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026 Principles of Artificial Intelligence

Max. Marks: 100

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

Module-1

- 1 a. Define Artificial Intelligence. Explain about acting rationally and thinking rationally. (10 Marks)
- b. Explain about foundations of Artificial Intelligence. (10 Marks)

OR

- 2 a. What are different properties of environment? (05 Marks)
- b. Explain in detail about simple reflex agents and model based reflex agent with diagram. (10 Marks)
- c. Give an example for simple reflex agents. (05 Marks)

Module-2

- 3 a. What is
 - i) Intelligent Agent
 - ii) Incremental foundation
 - iii) Goal formulation
 - iv) Abstraction
 - v) Problem formulation and how is this applied in real time (10 Marks)
- b. Define problem solving agent. Explain about vacuum world problem. (10 Marks)

OR

- 4 a. What is uniform search strategy? Explain breadth first search with example. (10 Marks)
- b. Discuss the 8-Queen problem in detail and explain how it can be solved using AI technique. (10 Marks)

Module-3

- 5 a. Explain A* search in detail with an example. (10 Marks)
- b. Discuss in detail about hill climbing search techniques. (10 Marks)

OR

- 6 a. Describe the wumpus world environment in detail. (10 Marks)
- b. Explain about inference and proofs in propositional theorem proving. (10 Marks)

Module-4

- 7 a. Discuss the syntax and semantics of first order logic. (10 Marks)
- b. State and explain about the kinship domain in first order logic. (10 Marks)

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OR

- 8 a. Explain the working of unification algorithm with suitable algorithm. (10 Marks)
b. Write and discuss about simple backward chaining algorithm. (10 Marks)

Module-5

- 9 a. What is uncertain knowledge? How knowledge is acting under uncertainty? (10 Marks)
b. Explain Axioms of probability. (10 Marks)

OR

- 10 a. Illustrate with an example Baye's rule and its use. (10 Marks)
b. Explain about the wumpus world revisited with an example. (10 Marks)

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