

(FOR THE CANDIDATES ADMITTED

24UAI308

DURING THE ACADEMIC YEAR 20

ONLY)

REG.NO. :

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI

END-OF-SEMESTER EXAMINATIONS : NOVEMBER-2025

B.Sc(C.Science with AI & ML)

MAXIMUM MARKS: 75

SEMESTER III

TIME : 3 HOURS

PART - III

24UAI308 - ARTIFICIAL INTELLIGENCE

SECTION – A

(10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS. (K1)

1. In the PEAS framework for an agent, the "E" stands for:_____
a) Environment b) Execution c) Evaluation d) Expertise
2. Which search strategy explores the shallowest node first?
a) Depth-First Search b) Breadth-First Search
c) Uniform Cost Search d) Best-First Search
3. In a stochastic game tree, the nodes representing random events are often called:_____
a) Terminal nodes b) Chance nodes c) Utility nodes d) Alpha nodes
4. In propositional logic, a statement that is always false is called:_____
a) Tautology b) Contradiction c) Contingency d) Equivalence
5. In Speech Recognition, the main goal is to:_____
a) Generate synthetic voices b) Convert spoken language into text
c) Translate text into another language d) Index audio files

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES

(K2)

6. Which term describes a machine's capability to carry out tasks that typically require human intelligence?
7. In informed search strategies, which symbol is commonly used to denote the heuristic function?
8. In CSPs, which algorithm is most commonly used for systematic search?
9. What is the term for a statement that remains true under all possible truth value assignments in propositional logic?
10. What is the process of finding relevant documents from a large collection called?

SECTION – B

(5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)

11. a) Discuss the future of Artificial Intelligence, including potential opportunities and challenges.

(OR)

- b) Differentiate between agents and environments in AI

(CONT...2)

Ethical paper

12. a) Describe the working of a problem-solving agent.
(OR)
b) Give an example of a local search algorithm and explain its working.
13. a) What is Alpha–Beta pruning, and how does it improve search efficiency?
(OR)
b) Describe the backtracking search algorithm used in CSPs
14. a) Explain the role of a Knowledge-Based Agent in AI.
(OR)
b) Describe the Propositional Logic and First Order Logic with examples.
15. a) Discuss Information Retrieval and Extraction in AI Applications
(OR)
b) Briefly explain the process of Speech Recognition from input audio to output text.

SECTION – C**(5 X 8 = 40 MARKS)****ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.(K4 (Or) K5)**

16. a) Briefly explain the history of Artificial Intelligence.
(OR)
b) Explain the structure of an agent and how it helps in solving AI problems.
17. a) Discuss Breadth-First Search highlighting their advantages and limitations.
(OR)
b) Elucidate the uninformed and informed search strategies with examples.
18. a) Explain the Minimax algorithm for two-player games with example.
(OR)
b) Discuss various local search algorithms for solving CSPs, and evaluate their advantages and limitations.
19. a) Discuss the syntax and semantics of First Order Logic with suitable examples.
(OR)
b) Compare Forward Chaining and Backward Chaining, and evaluate their effectiveness in different AI problem-solving scenarios.
20. a) Discuss the role of Natural Language Processing in AI, including key tasks
(OR)
b) Explain the complete pipeline of an AI-based Speech Recognition System

Ethical paper