2764

October 2025

Time – Two hours
(Maximum Marks: 60)

N.B. 1. Answer all questions under Part-A. Each question carries 1 mark.
2. Answer any 5 questions under Part-B. Each question carries 2 marks.
3. Answer any 3 questions under Part-C. Each question carries 10 marks.

PART – A

1. Which of the following best defines Artificial Intelligence?
   a) Ability to think rationally
   b) Ability to act like humans
   c) Ability to solve complex problems
   d) All of the above

2. Who is considered the father of Artificial Intelligence?
   a) Alan Turing
   b) John McCarthy
   c) Herbert Simon
   d) Marvin Minsky

3. Which of the following is a type of AI?
   a) Strong AI
   b) Weak AI
   c) Both A and B
   d) None

4. Which of the following is a key component of AI?
   a) Data entry
   b) Learning
   c) Typing speed
   d) File formatting

5. . Which algorithm uses the least memory space?
   a) A*
   b) DFS
   c) UCS
   d) BFS

6. Uniform cost search is similar to which algorithm?
   a) Breadth-first
   b) Depth-first
   c) Dijkstra's algorithm
   d) A*

7. What data structure is used in Depth-First Search?
   a) Queue
   b) Stack
   c) Heap
   d) Graph

8. Which search algorithm uses both path cost and heuristic value?
   a) Greedy
   b) A*
   c) DFS
   d) BFS

9. What is an example of an ontological object?
   a) Category "Vehicle"
   b) Instance "Car1"
   c) Event "Car started"
   d) Genetic algorithm

10. Which algorithm is based on the idea of survival of the fittest?
   a)A* search
   b) Hill climbing
   c) Genetic algorithm
   d) Beam search

11. Mental events in AI refer to:
   a) Physical changes
   b) Cognitive processes
   c) Hardware failures
   d) DB operations

12. Which optimization algorithm evaluates multiple states simultaneously?
    a) Hill Climbing
    b) Local Beam Search
    c) DFS
    d) BFS

13. Which constraint involves exactly two variables?
    a) Unary constraint
    b) Binary constraint
    c) Non-binary constraint
    d) Global constraint

14. Which search method is used for solving CSPs?
    a) Depth-first search
    b) Backtracking search
    c) Best-first search
    d) Greedy search

15. Constraint satisfaction problems involve:
    a) Optimization
    b) Decision making
    c) Satisfying constraints
    d) Prediction

16. A complete assignment in CSPs means:
    a) All variables have values assigned
    b) All constraints are satisfied
    c) The solution is optimal
    d) None of the Above

17. Which communication language is commonly used in multi-agent systems?
    a) Propositional Logic
    b) Agent Communication Language (ACL)
    c) Symbolic Logic
    d) Natural Language

18. Which of the following is not part of intelligent agent architecture?
   a) Sensor
   b) Actuator
   c) Brain
   d) Knowledge base

19. Agent communication involves:
   a) Argumentation
   b) Coordination
   c) Cooperation
   d) All of the above

20. Which method is used in Propositional Logic to check if a formula is valid?
   a)Truth Table
   b) Neural Network
   c) Regression Analysis
   d) Genetic Algorithm

PART – B

21. Define Artificial Intelligence.

22. List the components of an AI system.

23. Why is A* considered both complete and optimal?

24. What is Breadth-first search algorithm?

25. List any two optimization techniques used in AI.

26. What is constraint propagation?

27. List any two characteristics of Intelligent Agents.

28. What is a Propositional Theorem Prover?

PART – C

29. Write a short note on any 3 real-life applications of Artificial Intelligence.

30. Discuss various search algorithms used in AI with suitable examples.

31. Explain different knowledge representation schemes in AI.

32. Describe the Mini-Max search with suitable examples.

33. Explain the architecture for intelligent agents.

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