|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **P.V.P Siddhartha Institute of Technology** | | | | | | | | | **Signature of Invigilator with date:** | | **Marks Obtained:** | | |
| **Department of Computer Science and Engineering** | | | | | | | | |
| **Course: B.Tech** | | **Year: III** | | **Semester: I** | | **Objective: I** | | |
| **Regulation:PVP20** | | **Maximum Marks:10Marks** | | | | | | **Session: F.N** |
| **A.Y:2024-2025** | | **Date:16/08/2024** | | | **Duration: 20 min** | | | |
| **Subject Code:** **20CS4501D** | | | **Subject Name: ARTIFICIAL INTELLIGENCE** | | | | | | | | | | |
| **Registered Number:** | | | | | | | **Name:** | | | | | | |
| **Answer all the Questions. Each Question carries ½ Mark 20×½ M =10M** | | | | | | | | | | | | | |
| **S. No** | **Question** | | | | | | | | | **CO** | | **Level** | **Answer** |
| 1. | What is the primary objective of a problem-solving agent in AI?  a) To find the most cost-effective solution  b) To gather as much data as possible  c) To find a sequence of actions that reaches a goal state  d) To communicate effectively with other agents | | | | | | | | | CO1 | | L2 |  |
| 2. | In AI, a heuristic function is used in problem-solving to:  a) Reduce the search space  b) Increase the complexity of problems  c) Store data efficiently  d) Encrypt sensitive information | | | | | | | | | CO1 | | L2 |  |
| 3. | Which algorithm is commonly used for pathfinding in AI?  a) QuickSort b) A\* Algorithm c) Linear Regression  d) Support Vector Machine | | | | | | | | | CO1 | | L2 |  |
| 4. | What is "backtracking" in AI problem-solving?  a) Storing data in a backward manner  b) Returning to previous states to find new paths  c) Decreasing the speed of computation  d) Encrypting the problem data. | | | | | | | | | CO1 | | L2 |  |
| 5. | Which of the following is a characteristic of a depth-first search algorithm?  a) It explores the deepest node in the search tree first  b) It always finds the shortest path  c) It requires a large amount of memory  d) It operates in a parallel manner | | | | | | | | | CO1 | | L2 |  |
| 6. | In AI, "constraint satisfaction problems" are typically solved using:  a) Neural networks b) Genetic algorithms  c) Backtracking algorithms d) Linear programming | | | | | | | | | CO1 | | L2 |  |
| 7. | The problem solving requires which of the following. i. Formal knowledge representation ii. Conversion of informal knowledge to formal knowledge iii. Conversion of formal knowledge to informal knowledge a) i and ii only b) ii and iii only c) i and iii only d) All i, ii and iii | | | | | | | | | CO1 | | L2 |  |
| 8. | What is "state space" in AI problem-solving?  a) The physical space where the agent operates  b) The set of all possible states reachable from the initial state  c) The memory space allocated for the AI program  d) The graphical representation of the problem | | | | | | | | | CO1 | | L2 |  |
| 9. | In AI, "pruning" in the context of search algorithms refers to:  a) Removing unnecessary or suboptimal paths from consideration  b) Cutting down the data storage requirements  c) Reducing the number of agents in a system  d) Encrypting data to protect it from pruning attacks | | | | | | | | | CO1 | | L2 |  |
| 10. | The "traveling salesman problem" in AI is an example of:  a) A linear programming problem  b) A constraint satisfaction problem  c) An optimization problem  d) A data storage problem | | | | | | | | | CO1 | | L2 |  |
| 11. | What does an "admissible heuristic" in AI guarantee?  a) The fastest solution b) The most cost-effective solution  c) An optimal solution d) The least memory usage | | | | | | | | | CO1 | | L2 |  |
| 12. | The concept of "hill climbing" in AI problem solving is similar to:  a) Simulated annealing b) Genetic algorithms  c) Gradient ascent d) Random walk | | | | | | | | | CO1 | | L2 |  |
| 13. | What is the primary function of "Alpha-Beta pruning" in AI?  a) To compress data more efficiently  b) To reduce the number of nodes evaluated in the minimax algorithm  c) To increase network throughput  d) To encrypt sensitive data | | | | | | | | | CO1 | | L2 |  |
| 14. | A key distinction between a simple reflex agent and a model-based reflex agent is:  a) The ability to maintain internal state  b) The speed of execution  c) The complexity of tasks it can perform  d) The type of sensors used | | | | | | | | | CO1 | | L2 |  |
| 15. | What role does a "utility function" play in AI agents?  a) It determines the speed of the agent  b) It defines the agent's learning algorithm  c) It measures how desirable a given state is  d) It controls the agent's physical movements | | | | | | | | | CO1 | | L2 |  |
| 16. | The "PEAS" description of an AI agent includes:  a) Performance measure, Environment, Actions, Sensors  b) Processor, Energy, Agility, Speed  c) Prediction, Efficiency, Accuracy, Stability  d) Programming, Execution, Adaptation, Storage | | | | | | | | | CO1 | | L2 |  |
| 17. | Which AI concept involves an agent improving its performance by observing and mimicking human behavior?  a) Supervised learning b) Cognitive modeling  c) Neural networking d) Reinforcement learning | | | | | | | | | CO1 | | L2 |  |
| 18. | The "actuators" of an AI agent are responsible for:  a) Processing data  b) Learning from experiences  c) Carrying out actions in the environment  d) Gathering sensory data | | | | | | | | | CO1 | | L2 |  |
| 19. | The main difference between a deterministic environment and a stochastic environment in AI is:  a) The presence of other agents  b) The predictability of the environment's response  c) The complexity of the tasks  d) The speed of change in the environment | | | | | | | | | CO1 | | L2 |  |
| 20. | Which form is called as a conjunction of disjunction of literals? a) Conjunctive normal form b) Disjunctive normal form c) Normal form d) All of the mentioned | | | | | | | | | CO1 | | L2 |  |