|  |
| --- |
| **P.V.P SIDDHARTHA INSTITUTE OF TECHNOLOGY** |
| **Computer Science and Engineering** | **Regulation:PVP20** |
| **Course: B.Tech** | **Subject: Artificial Intelligence** |
| **Subject Code: 20CS4501D** | **Year :III** | **Semester: I** |
| **QUESTION BANK** |

|  |  |  |  |
| --- | --- | --- | --- |
| Q.No | **Unit-I** | **CO** | **Level** |
| 1 | Classify the different types of agents? | CO4 | L4 |
| 2 | Analyze the characteristics of Intelligent Agent. | CO4 | L4 |
| 3 | Describe the architecture of Utility based agent. How is it different from model-based agent.  | CO1 | L2 |
| 4 | Compare and contrast planning agent with Problem solving agent | CO4 | L4 |
| 5 | Differentiate Episodic Vs Sequential environments. | CO4 | L4 |
| 6 | Analyze the factors that a rational agent should depend on at any given time? | CO4 | L4 |
| 7 | Define Artificial Intelligence.Expalin any 5 real-time applications of AI technology. | CO1 | L2 |
| 8 | Analyze the challenges associated with Partially observable environment. | CO4 | L4 |
| 9 | Analyse and explain the structure of Simple reflex agents and Goal Based agents with a suitable example for each. | CO4 | L4 |
| 10 | Differentiate Fully Observable vs Partially Observable environment. | CO4 | L4 |
| **Unit-II** |
| 1 | Apply the types of HilI Climbing search techniques for a problem .1. Simple Hill Climbing.
2. Steepest-Ascent Hill Climbing
 | CO2 | L3 |
| 2 | Analyze the A\* searching technique with an example. Discuss conditions for the optimality. | CO4 | L4 |
| 3 | Apply the heuristic search problem with an example. | CO2 | L3 |
| 4 | Differentiate Breadth first search and depth first search with examples. | CO4 | L4 |
| 5 | Distinguish Informed and Uninformed searching strategies. | CO4 | L4 |
| 6 | Demonstrate the techniques used in searching for solution.  | CO4 | L4 |
| 7 | Apply the Alpha-Beta pruning with a suitable example. | CO2 | L3 |
| 8 | Differentiate between A\* algorithm and Best First Search algorithm. | CO4 | L4 |
| 9 | Analyze the advantages of Uninformed Search Strategies. | CO4 | L4 |
| 10 | Analyze the limitations of Constraint Satisfaction Problem. | CO4 | L4 |
| **Unit-III** |
| 1 | Illustrate the use of First order Logic to represent the knowledge with examples. | CO2 | L3 |
| 2 | Analyze the issues in the representation of knowledge. | CO4 | L4 |
| 3 | Differentiate forward and backward chaining with a suitable example. | CO4 | L4 |
| 4 | List the issues in knowledge representation.Write First order logic for the following statements* If a perfect square is divisible by a prime p hen it is also divisible by square of p
* Every perfect square is divisible by some prime.
* Alice does not like chemistry and History.
* If it is Saturday and warm, then am is in park.
* Anything anyone eats and is not killed by is food.
 | CO2 | L3 |
| 5 | Illustrate propositional resolution and Unification algorithm with examples | CO2 | L3 |
| 6 | Analyze propositional knowledge with suitable examples. Compare it with predicate knowledge. | CO4 | L4 |
| 7 | Relate first order logic with proposition logic and discuss in detail about the same with an example. | CO2 | L3 |
| 8 | Analyze the key principles of knowledge based agents.  | CO4 | L4 |
| 9 | Illustrate Resolution with examples. | CO2 | L3 |
| 10 | Analyze the role of inference engine in AI. | CO4 | L4 |
| **Unit-IV** |
| 1 | Analyze various components of a planning system? | CO4 | L4 |
| 2 | Demonstrate planning with propositional logic with a suitable example. | CO3 | L3 |
| 3 | Prove that “ A literal that does not appear in the final level of the graph cannot be achieved.” | CO3 | L3 |
| 4 | Analyze the limitations of the problem-solving approach and what is the motivation behind the design of planning systems | CO4 | L4 |
| 5 | Differentiate between problem solving and planning | CO4 | L4 |
| 6 | Prove that backward search with PDDL problems is complete. | CO3 | L3 |
| 7 | Analyze the planning approaches. | CO4 | L4 |
| 8 | Identify high-level plans that work while avoiding high-level plans that don't using a hierarchical planning algorithm  | CO4 | L4 |
| 9 | Demonstrate planning with propositional logic to find the solution for the Wumpus world problem. | CO3 | L3 |
| 10 | Illustrate role of planning in artificial intelligence? Explain with an example | CO3 | L3 |
| **Unit-V** |
| 1 | Analyze the major issues that affect the design of the learning element. | CO4 | L4 |
| 2 | Analyze various phases of Reinforcement learning agents. | CO4 | L4 |
| 3 | Differentiate various forms of learning. | CO4 | L4 |
| 4 | Analyze various issues in learning a probabilistic model. | CO4 | L4 |
| 5 | Illustrate Reinforcement learning with an example. | CO3 | L3 |
| 6 | Is reinforcement learning an appropriate abstract model for evolution? What connection exists, if any, between hardwired reward signals and evolutionary fitness? | CO4 | L4 |
| 7 | Explain how to apply the boosting method to naive Bayes learning.  | CO3 | L3 |
| 8 | Relate the concept of logical formulation of learning with suitable example. | CO3 | L3 |
| 9 | Apply the process the process of reinforcement learning in the real time self-driving cars. | CO3 | L3 |
| 10 | Analyze the role of learning in feedback models. | CO4 | L4 |