SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

Ramapuram Campus, Bharathi Salai, Ramapuram, Chennai - 600089

**FACULTY OF ENGINEERING AND TECHNOLOGY**

# DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**QUESTION BANK**

DEGREE / BRANCH: \_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_ SEMESTER

**SUB CODE – SUBJECT NAME**

Regulation – \_\_\_\_\_\_

Academic Year \_\_\_\_\_\_\_

# SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

**Ramapuram Campus, Bharathi Salai, Ramapuram, Chennai-600089**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**QUESTION BANK**

**Subject Code:** 18CSC305J

**Subject Name:** ARTIFICIAL INTELLIGENCE

**SEM/ YEAR: III/VI**

**Course Outcomes**

***CO1:*** Formulate a problem and build intelligent agents

***CO2:*** Gain Knowledge in problem and building intelligent agents

***CO3:*** Understand the search technique procedures applied to real world problems

***CO4:*** Acquire knowledge in planning and learning algorithms

***CO5:***Gain Knowledge in AI Applications and advances in Artificial Intelligence

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| **UNIT IV** | | | |
| Planning- Planning problems, Simple planning agent, Planning languages, Blocks world ,Goal stack planning, Mean Ends Analysis, Non-linear Planning, Conditional planning, Reactive planning.  Learning-Machine learning, Goals and Challenges of ML, Learning concepts, models, Artificial neural network base learning-Back propogation, Support Vector machines, Reinforcement learning, Adaptive learning, multiagent based learning, Ensemble learning, Learning for decision making, Distributed learning, Speedup learning. | | | |
| **PART-A (Multiple Choice Questions)** | | | |
| **Q.**  **No** | **Questions** | **Course Outcome** | **Competence**  **BT Level** |
| **1** | Block world problem is also known as \_\_\_\_\_\_\_\_\_\_\_\_\_  1. STRIPS  2. Linear Planning  3. Non-Linear Planning  4. Susan Anomaly | CO4 | BT1 |
| **2** | Standard planning algorithms assumes environment to be **1.** Deterministic  **2.** Fully observable  **3.** Single agent  **4.** Stochastic | CO4 | BT1 |
| **3** | Planning problem combines the two major aspects of AI **1.** Search & Logic  **2.** Logic & Knowledge Based Systems  **3.** FOL & Logic  **4.** Knowledge Based Systems | CO4 | BT1 |
| **4** | Machine learning is a subset of  1.Deep Learning  2.Data Science  3.Artificial Intelligence  4.All the above | CO4 | BT1 |
| **5** | Which type of learning best describes the problem of learning to ride a bicycle?  1.Supervised  2.Unsupervised  3.Reinforcement  4.Inductive | CO4 | BT4 |
| **6** | What is used to mitigate overfitting in a test set?  1.Overfitting set  2.Training set  3.Validation dataset  4.Evaluation set | CO4 | BT2 |
| **7** | What is perceptron?  1.A single layer feed-forward neural network with pre-processing  2.A neural network that contains feedback  3.A double layer auto-associative neural network  4.An auto-associative neural network | CO4 | BT1 |
| **8** | Real-Time decisions, Game AI, Learning Tasks, Skill Acquisition, and Robot Navigation are applications of which of the following  1.Supervised Learning: Classification  2.Reinforcement Learning  3.Unsupervised Learning: Clustering  4.Unsupervised Learning: Regression | CO4 | BT4 |
| **9** | **Which of the following algorithm is used to obtain the plan directly from the planning graph, instead of using the graph to provide heuristic.**  1. BFS/DFS  2. A\*  3. Graph-Plan  4. Greedy | CO4 | BT1 |
| **10** | **Suppose we want to eliminate the inaccuracy problem in partial-order planning problem or planning problem, then the best data structure to use is the?**  **1.**Stacks  2.Planning Graphs  3.BST (Binary Search Tree)  4.Queue | CO4 | BT1 |
| **PART B (4 Marks)** | | | |
| **1** | What is meant by Means-Ends Analysis? | CO4 | BT1 |
| **2** | What is planning? | CO4 | BT1 |
| **3** | What are K-Strips? | CO4 | BT1 |
| **4** | What are Strips? | CO4 | BT1 |
| **5** | What is nonlinear planning? | CO4 | BT1 |
| **6** | What are the components of a planning system? | CO4 | BT1 |
| **7** | What is Resilience in Planning? | CO4 | BT1 |
| **8** | Differentiate Search & planning. | CO4 | BT1 |
| **9** | What is contingency planning? | CO4 | BT1 |
| **10** | What are the functions of planning systems? | CO4 | BT1 |
| **11** | What is the need of POP algorithms? | CO4 | BT1 |
| **12** | List out the various planning techniques. | CO4 | BT1 |
| **13** | What is Machine Learning | CO4 | BT1 |
| **14** | Explain the various terms used in reinforcement learning | CO4 | BT1 |
| **15** | What algorithm is used in fraudulent analysis. | CO4 | BT4 |
| **16** | Differentiate adaptive and ensemble learning | CO4 | BT2 |
| **17** | What is Speedup learning? | CO4 | BT1 |
| **18** | Explain the concept of multi agent learning. | CO4 | BT1 |
| **19** | Explain the layers in ANN. | CO4 | BT1 |
| **20** | What is hierarchical planning? | CO4 | BT1 |
| **PART C (12 Marks)** | | | |
| **1** | List out the planning terminologies and components of planning | CO4 | BT1 |
| **2** | Explain the basic plan generation in detail? | CO4 | BT2 |
| **3** | Explain in detail the STRIPS? | CO4 | BT2 |
| **4** | Illustrate STRIPs-style operators that corresponds to the following blocks world description.  A ON(A,B,S0) ^  B ONTABLE(B,S0) ^ CLEAR(A,S0) | CO4 | BT2 |
| **5** | Summarize on Nonlinear Planning using Constraint Posting | CO4 | BT2 |
| **6** | Construct the problem of changing a flat tire. The goal is to have a good spare tire properly mounted onto the car’s axle, where the initial state has a flat tire on the axle and a good spare tire in the trunk. To keep it simple, our version of the problem is an abstract one, with no sticky lug nuts or other complications. There are just four actions: removing the spare from the trunk, removing the flat tire from the axle, putting the spare on the axle and leaving the car unattended overnight. Write the STRIPS and find out the solution. | CO4 | BT3 |
| **7** | Explain about Hierarchical planning method with example? | CO4 | BT2 |
| **8** | * 1. In computers, in many cases, rote learning is used. Give five such examples of rote learning. | CO4 | BT1 |
| **9** | Explain reinforcement learning with an example. | CO4 | BT1 |
| **10** | What is Machine learning? Explain the types of machine learning. | CO4 | BT1 |
| **11** | Place an agent in any one of the room (0,1,2,3,4) and the goal is to reach outside the building. What learning will you use? Explain briefly. | CO4 | BT5 |
| **12** | What learning method can we use to predict the future sales of a company? | CO4 | BT4 |
| **13** | Explain feedforward neural network. | CO4 | BT1 |
| **14** | Using the concept of Ensemble learning, describe the learning by kids. | CO4 | BT1 |
| **15** | Explain in detail about STRIPS and write the components of STRIPS for  the given scenario: “Consider a flight journey in a luxurious flight from India to US” | CO4 | BT2 |

**Note:**

1. **BT Level –** Blooms Taxonomy Level
2. **CO – Course Outcomes**

BT1 – Remember BT2 – Understand BT3 – Apply BT4 – Analyze BT5 – Evaluate BT6 – Create