**CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**DEVANG PATEL INSTITUTE OF ADVANCE TECHNOLOGY AND RESEARCH**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**ACADEMIC YEAR: 2021-22**

**List of Experiments**

Name of Teacher: Dr. Chirag Patel , Chintal Raval Date: 14/06/2021

Subject: ARTIFICIAL INTELLIGENCE (IT473) (7th Sem)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Exp. No | Name of Experiment | | No. of Lab Hours | CO |
| 1. |  | Write Programs to demonstrate knowledge of Prolog Basics. | 2 | 2 |
|  | 1.1 | Write a program in prolog to implement simple facts and Queries. |  |  |
|  | 1.2 | Write a program in prolog to implement phone list which stores name, phone number and birthdays of friends and family members. Write a query to get a list of people whose birthdays are in the current month. |  |  |
|  | 1.3 | Write predicates one converts centigrade temperatures to Fahrenheit, the other checks if a temperature is below freezing. |  |  |
|  | 1.4 | Demonstrate Backtracking in Prolog. |  |  |
| 2. |  | Write Programs to demonstrate knowledge of arithmetic operators in prolog | 1 | 2 |
|  | 2.1 | Write a program to display Fibonacci series in prolog |  |  |
|  | 2.2 | Write a program to find factorial of a number in prolog |  |  |
| 3. |  | Write a prolog program for medical diagnosis system of childhood diseases. |  |  |
| 4. |  | Write a program which contains three predicates: male, female, parent. Make rules for following family relations: father, mother, grandfather, grandmother, brother, sister, uncle, aunt, nephew and niece, cousin. |  |  |
| 5. |  | Write a program to perform following operations on lists in prolog. | 1 | 2 |
|  | 5.1 | Print member of a list |  |  |
|  | 5.2 | Write list |  |  |
|  | 5.3 | Membership |  |  |
|  | 5.4 | Concatenation |  |  |
|  | 5.5 | Add an item |  |  |
|  | 5.6 | Delete an item |  |  |
|  | 5.7 | Sub list |  |  |
|  | 5.8 | Permutations |  |  |
|  | 5.9 | Append list |  |  |
|  | 5.10 | Finding nth element |  |  |
| 6. |  | Write a program to demonstrate cut and fail in prolog. | 1 | 2 |
| 7. | 7.1 | Design Depth First Search Tree and Breadth First Search Tree for Water-Jug Problem in python | 1 | 1 |
|  | 7.2 | Write a program to solve The N queen Problem using Hill Climbing with random Neighbor | 1 |  |
|  | 7.3 | Implement Travelling Salesman Problem using Simulated Annealing Algorithm in Python. | 1 |  |
|  | 7.4 | Write a Program to find Shortest Path using Best First Search Algorithm. | 1 |  |
|  | 7.5 | Write a program to solve 8 puzzle problem using A\*Algorithm in python | 1 |  |
| 8. |  | Write a program for game Tic-Tac-Toe using MINIMAX Algorithm in python. | 2 | 4 |
| 9. |  | Find out shortest path using Ant Colony Optimization for given Graph. |  | 4 |
| 10. |  | Write a program to solve Multi Objective Optimization problem Using Particle Swarm Optimization | 2 | 6 |
| 11. |  | Solve Ex-OR Gate classification problem using Artificial Neural Network with Back Propagation | 2 | 6 |
| 12. |  | Perform sentiment analysis of movie reviews using nltk in python | 2 | 4 |
| 13. |  | Design a Fuzzy autopilot for a small marine vessel | 2 | 2 |
| 14. |  | STRIPS(Stanford Research Institute Problem Solver) -Based Approach to Robot Control | 2 | 6 |