Fr. Conceicao Rodrigues College of Engineering
Fr. Agnel Ashram, Bandstand, Bandra (W), Mumbai - 400050

Department of Computer Engineering
Academic Term II: 23-24

**Class: B.E (Computer), Sem – VI**   **Subject Name: Artificial Intelligence**

Student Name: **Roll No:**

Practical No:	**8**
Title:	Programming in PROLOG
Date of Performance:	25–03–2024
Date of Submission:	01–04–2024

Rubrics for Evaluation:

Sr. No	Performance Indicator	Excellent	Good	Below Average	Marks
1	On time Completion & Submission (01)	01 (On Time)	NA	00 (Not on Time)	
2	Logic/Algorithm Complexity analysis (03)	03(Correct)	02(Partial)	01 (Tried)	
3	Coding Standards (03): Comments/indention/Naming conventions Test Cases /Output	03(All used)	02 (Partial)	01 (rarely followed)	
4	Post Lab Assignment (03)	03(done well)	2 (Partially Correct)	1(submitted)	
Total					

Signature of the Teacher:
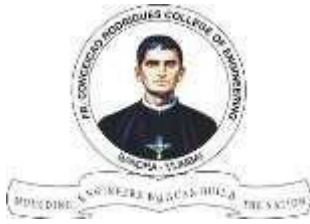
Fr. Conceicao Rodrigues College of Engineering
Fr. Agnel Ashram, Bandstand, Bandra (W), Mumbai - 400050

Post Lab Questions:

1. List all the methods which could be used to solve the tower of Hanoi problem.
2. Which is the best approach and why?
3. What are the applications of the Tower of Hanoi?

FR. CONCEICAO RODRIGUES COLLEGE OF ENGINEERING

9526 TE COMPS · A   AI   Exp8

Postlabs :-

① List all the methods which could be used to solve the
tower of Hanoi problem.
⇒ 1. Recursion : Divides the problem into smaller subproblems
until a base case is reached.
2. Iterative approach : Simulate the recursive process using
loops and stacks or queues.
3. Binary reprecentation : Represents the problem using binary
numbers and manipulates them to determine moves.
4. Mathematical formula : Uses formulas to calculate the
minimum number of moves without solving recursively.
5. Dynamic Programming : Stores and reuses intermediate results
to avoid redundant calculation.
6. Graph Theory : Modes the problem as a graph and uses
traversal algorithms to find the shortest path.

② Which is the best approach and why?
⇒ The recursive approach is favored for solving the Tower of
Hanoi problem because it naturally aligns with the problem's
recursive nature. It degantly breaks down the problem into
smaller subproblems, which simplifies the solution process.
Additionally, it typically results in clean and more
readable code compared to other methods, making it
easier to maintain and understand. Overall, the
recursive approach offers a straightforward and efficient
Solution strategy for the Tower of Hanoi Problem.

③ What are the applications of the Tower of Hanoi?
⇒ 1. Computer Science. It serves as a classic problem for teaching

29

recursions and algorithmic design

2. Operations research: It can model logistical and scheduling problems where the objective is to minimize the number of moves or time required to complete a task.

3. Mathematical theory: It provides an example for exploring the properties of recursive algorithms, combinatorial mathematics and graph theory.

4. Psychology: It has been used in cognitive psychology research to study problem-solving strategies and decision making processes.

5. Education: It is used as a puzzle or brain-teaser in educational settings to develop critical thinking and problem-solving skills.