Department of Computer Engineering
Academic Term II: 23-24

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

Name: Sumit Sanjay Rai   **Roll No: 9570**

Practical No:	3
Title:	Use DFS problem solving method for a) Water Jug Problem b) Missionaries & Cannibals
Date of Performance:	12/02/2024
Date of Submission:	19/02/2024

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:

Post Lab Assignment:
1. What is the time complexity of the Water Jug problem?
2. Why is DFS not used for solving a water jug problem?

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PostLab : Experiment - 3

Q.1. What is the time complexity of the Water jug problem?

Ans. The time complexity of the Water Jug problem, using BFS or DFS is approximately $O(m \times n)$. where m and n are the capacities of the two jugs.

Q.2. Why is DFS not used for solving a water jug problem?

Ans. DFS is not typically used for solving the Water jug problem because it may get stuck in deep branches without finding a solution, does not guarantee finding the shortest path to the solution, and may exhaust memory if the search space is large.