

**UCT31021 – PRACTICAL FOR ARTIFICIAL INTELLIGENCE**  
**DEPARTMENT OF ICT**  
**FACULTY OF TECHNOLOGY**  
**SOUTH EASTERN UNIVERSITY OF SRILANKA**

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**Labsheet: 07**

**Title: Traversals in PROLOG**

**Aims:**

- To understand Breath First Search (BFS) and Depth First Search (DFS)

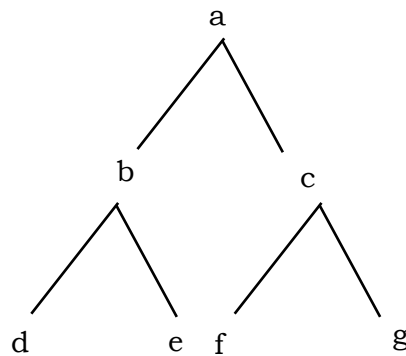
e.g.:

**BFS**

a, b, c, d, e, f, g

**DFS**

a, b, d, e, c, f, g

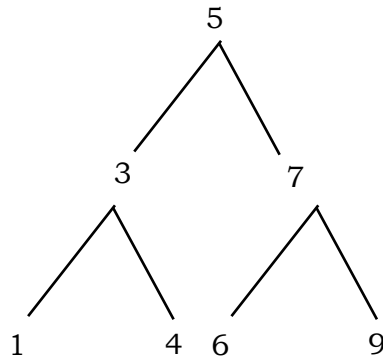


**Task 01:**

1. Give an example for each in-build operations related to a list.
  - a. length/2
  - b. append/3
  - c. memberchk/2
  - d. delete/3
  - e. union/3
  - f. reverse/2
2. Create rules to check the availability of the member in given list. Note: use recursive function to check each member in the list.

## Task 02:

1. Create a knowledgebase with suitable facts by using list to represent following tree.



2. The result of the BFS of a list of 5, 3, 7, 1, 4, 6, and 9. Create rules to have the results of BFS.
3. The result of the DFS of a list of 5, 3, 1, 4, 7, 6, and 9. Create rules to have the results of DFS.

## Task 03: Finding path in a graph

Consider the following connected graph

