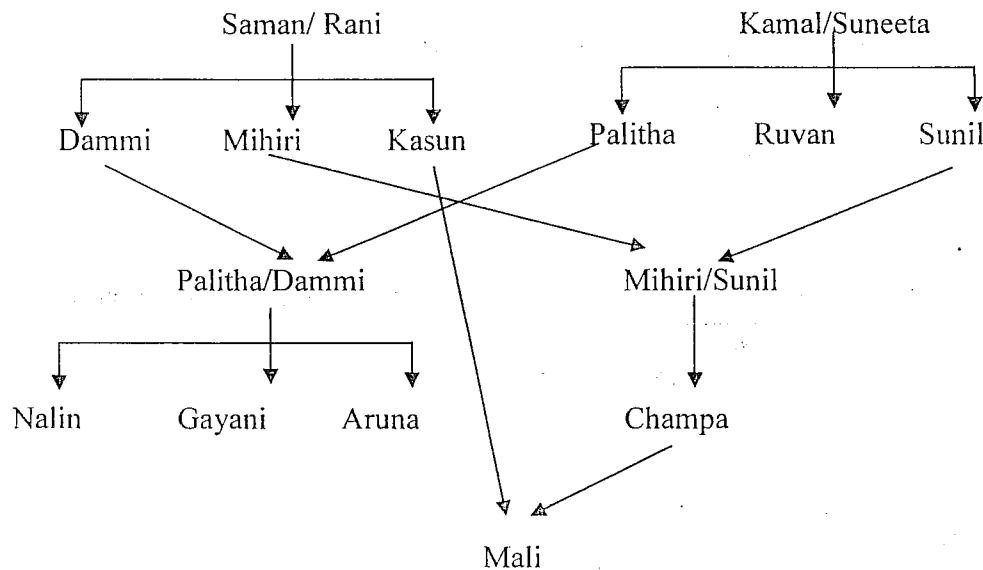




Answer ALL Questions.

Q1.

- What are the differences between a PROLOG rule and a fact?
- Implement the following information about a family tree using PROLOG predicates male/1, female/1 and child(X,Y) .



- Create a Prolog rule to find brothers and sisters of a given person.
- Create a PROLOG rules to find grandfather or grandmother of a given person.
- Create a PROLOG rule to tell relation between two person.

Examples:

tellRelation(Saman, Mihiri).

Saman is father of Mihiri

tellRelation(Rani, Mali).

Rani is grandmother of Mali

Q2.

- a. Explain briefly the difference between `consult/1` and `ensure_loaded/1` prolog predicates.
- b. Explain briefly the following PROLOG Operators with an example
  - i. `fail/0`
  - ii. `!`
  - iii. `true/0`
- c. Write a prolog rule to perform the following task. To calculate the length of a given list.  
`? lengthlist([a,b,c,d],X).`  
`X = 4`
- d. Consider the following prolog rules and explain how prolog works for the following list operation  
`printLst([]).`  
`printLst([H|T]) :- printLst(T), write(H), nl.`
  1. `printLst([a,b,c,d]).`
  2. `printLst([a,b,[c,d],[]]).`

Q3.

- a. To store Student record in a particular class, following information is used.

Student ID	Name
As0001	Saman Kumara
As0002	Ruwan Silva

Student ID	Subject	Marks (Max 20)
As0001	CSU2280	10
As0002	CSU2280	19

- i. Store the above information using PROLOG.
- ii. Create a Mark sheet for a given Subject, the output should be as follows.

RESULT SHEET	
SUBJECT: CSU2280	
Student ID	Marks
As0001	10
As0002	19

- b.
- i. Create a prolog rule named `printStarLine/1` to print stars for a given number as of,

```
printStarLine(5).  
* * * * *
```

- ii. Create a Prolog rule `graphLine/2` to print given text and the star line.  
`graphLine(baby,5)`

```
baby| * * * * *
```

- iii. Create a rule named `class_statics/0` to draw a graph for given student results.

```
as001| * * * * * * * * * *  
as002| * * * * * *  
as003| * * * * * * * * *  
as004| * * * *  
-----
```

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