**Name: Brijesh Rohit**

**Admission no.: U19CS009**

**ARTIFICIAL INTELLIGENCE - ASSIGNMENT - 3**

**Consider the following story.**

**“I married a widow (call her W) who has a grown-up daughter (D). My father (F), who visited us quite often, fell in love with my step- daughter and married her. Hence my father became my son-in-law and my step-daughter became my mother. Some months later, my wife gave birth to a son (S1), who became the brother-in-law of my father, as well as my uncle. The wife of my father-that is, my step-daughter also had a son (S2).”**

* **Using Prolog, create a list of facts that represents the situation in the above story.**
* **Add rules defining the family relationships (such as father-in- law) described in the story.**
* **Show how a Prolog system would use your program to prove the goal “I am my own grandfather"**

**PROGRAM=>**

|  |
| --- |
| %U19CS009  %BRIJESH\_ROHIT  %MALES  male('I').  male('F').  male('S1').  male('S2').  %FEMALES  female('W').  female('D').  %PARENT(WHO, TO\_WHOM)  parent('I','D').  parent('W','D').  parent('F','I').  parent('D','I').  parent('I','S1').  parent('W','S1').  parent('F','S2').  parent('D','S2').  %MARRIED(WHO, TO\_WHOM)  married('I','W').  married('F','D').  married('W','I').  married('D','F').  %WIDOW  widow('W').  %RULES  step\_children(X,Y):-Y\==parent(Z,X),parent(Z,X),married(Z,Y).  stepdaughter(X,Y):-female(X),step\_children(X,Y).  son(X,Y):-male(X),parent(Y,X).  daughter(X,Y):-female(X),parent(Y,X).  husband(X,Y):-male(X),married(X,Y),female(Y).  wife(X,Y):-husband(Y,X).  sibling(X,Y):-parent(Z,X),parent(Z,Y).  soninlaw(X,Y):-male(X),parent(Y,Z),married(X,Z).  brotherinlaw(X,Y):-male(X),married(Y,Z),female(Z),sibling(X,Z).  fatherinlaw(X,Y):-male(X),parent(X,Z),married(Y,Z).  uncle(X,Y):-male(X),sibling(X,Z),parent(Z,Y).  grandfather(X,Y):-male(X),parent(X,Z),parent(Z,Y). |

**OUTPUT=>**

