Work Sheet - Module-2

1. Unify the following giving the resulting substitutions:

a. King(x) with King(Marcus)

b. Loves(x,John) with Loves(John, John)

c. Loves(John, Mary) with Loves(John, Cathy)

d. F(Marcus, G(x,y)). With F(x, G(Caesar, Marcus))

2. For the given KB (Knowledge Base) below

I) Man(Marcus)

ii) Pompeian(Marcus)

iii) Pompeian(x) -> Roman(x)

v) Roman(x) -> Loyal(x, Ceaser)

Prove Loyal(Marcus, Ceaser) by Forward Chaining

3. For the given KB (Knowledge Base) below

I) Man(Marcus)

ii) Pompeian(Marcus)

iii) Pompeian(x) -> Roman(x)

v) Roman(x) -> Loyal(x, Ceaser)

Prove Loyal(Marcus, Ceaser) by Backward Chaining

4.

4. Consider the following sentences:
   - John likes all kinds of food.
   - Apples are food.
   - Chicken is food.
   - Anything anyone eats and isn't killed by is food.
   - Bill eats peanuts and is still alive.
   - Sue eats everything Bill eats.

   (a) Translate these sentences into formulas in predicate logic.
   (b) Prove that John likes peanuts using backward chaining.
   (c) Convert the formulas of part a into clause form.
   (d) Prove that John likes peanuts using resolution.
   (e) Use resolution to answer the question, "What food does Sue eat?"

(a) Translate these sentences into formulas in predicate logic.
(b) Prove that John likes peanuts using backward chaining.
(c) Convert the formulas of part a into clause form.
(d) Prove that John likes peanuts using resolution.
(e) Use resolution to answer the question, "What food does Sue eat?