**3.Sol** Consider the following predicates for checking the validity of argument:

1. P(x): x is able to prevent evil
2. Q(x): x is willing to prevent evil
3. R(x): x prevents evil
4. S(x): x is impotent
5. T(x): x is malevolent
6. U(x): x exists

let us assume Superman = s, now for S following arguments are assumed:

1. (P(s) Λ Q(s)) → R(s) (If Superman were able and willing to prevent evil, he would do so)
2. ­­­­(P(s)) → S(s) (If Superman were unable to prevent evil, he would be impotent)
3. (Q(s)) → T(s) (If he were unwilling to prevent evil, he would be malevolent)
4. (R(s)) (Superman does not prevent evil)
5. U(s) → (S(s) Λ T(s) (If Superman exists, he is neither impotent nor malevolent)

Solving for validity of argument:

Using **Modus Tollens** for 1 and 4: (P(s) Λ Q(s)) ≡ (P(s)) V (Q(s)) (argument 6)

(P(s)) → S(s) ≡ P(s) V S(s) (argument 7) (Q(s)) → T(s) ≡ Q(s) V T(s) (argument 8)

Using **Resolution** for 6 and 7: (Q(s)) V S(s) (argument 9)

Using **Resolution** for 8 and 9: T(s) V S(s) (argument 10)

Argument 10 also equivalent to: T(s) V S(s) ≡ (T(s) V S(s)) (argument 11)

Using **Modus Tollens** for 11 and 5: U(s)

Hence (U(s)) Super man doesn’t exist is proved