Lab7 – Resolution   Output

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```
In [9]: #test 1
        #(P^Q)<=>R : (Rv~P)v(Rv~Q)^(~RvP)^(~RvQ)
        main()
```

```
Enter the kb:
Rv~P Rv~Q ~RvP ~RvQ
Enter the query:
R

Step    |Clause |Derivation
------------------------------
  1.    | Rv~P  | Given.
  2.    | Rv~Q  | Given.
  3.    | ~RvP  | Given.
  4.    | ~RvQ  | Given.
  5.    | ~R    | Negated conclusion.
  6.    |       | Resolved Rv~P and ~RvP to Rv~R, which is in turn null.
A contradiction is found when ~R is assumed as true. Hence, R is true.
```

```
In [10]: #test 2
         #(P=>Q)=>Q, (P=>P)=>R, (R=>S)=>~(S=>Q)
         main()
```

```
Enter the kb:
PvQ PvR ~PvR RvS Rv~Q ~Sv~Q
Enter the query:
R

Step    |Clause |Derivation
------------------------------
  1.    | PvQ   | Given.
  2.    | PvR   | Given.
  3.    | ~PvR  | Given.
  4.    | RvS   | Given.
  5.    | Rv~Q  | Given.
  6.    | ~Sv~Q | Given.
  7.    | ~R    | Negated conclusion.
  8.    | QvR   | Resolved from PvQ and ~PvR.
  9.    | Pv~S  | Resolved from PvQ and ~Sv~Q.
 10.    | P     | Resolved from PvR and ~R.
 11.    | ~P    | Resolved from ~PvR and ~R.
 12.    | Rv~S  | Resolved from ~PvR and Pv~S.
 13.    | R     | Resolved from ~PvR and P.
 14.    | S     | Resolved from RvS and ~R.
 15.    | ~Q    | Resolved from Rv~Q and ~R.
 16.    | Q     | Resolved from ~R and QvR.
 17.    | ~S    | Resolved from ~R and Rv~S.
 18.    |       | Resolved ~R and R to ~RvR, which is in turn null.
A contradiction is found when ~R is assumed as true. Hence, R is true.
```