

lecture 8 :

A Good Question :-

wording is clear.

Time.

پیش منظر Background.
پیش منظر Current Standing.

Principle of Resolution.

literal: Propositional Variable or its negation. $P \neg P$.

clause: A disjunction of literals. $P \vee Q$

$$P \vee \neg Q$$

$$P \vee Q, \neg P \vee \neg Q$$

$$P1 \quad P$$

$$C1 \quad P \quad \checkmark$$

$$P2 \quad \underline{P \rightarrow Q}$$

$$C2. \quad \neg P \vee Q. \quad \checkmark$$

$$C \quad \therefore Q$$

$$C3 \quad \neg Q. \quad \checkmark$$

$$\text{from } C1, C2 \quad Q \text{ --- } (4) \quad \checkmark$$

$$\text{from } C3, 4 \quad \square \text{ --- } (5) \quad \checkmark$$

$$\begin{array}{c} P \wedge Q \quad P \\ \text{---} \\ P \rightarrow Q \\ \text{---} \\ \neg P \vee Q \quad \checkmark \\ \text{---} \\ Q \end{array}$$

$$\text{Ex11-65. } P1 \quad T \rightarrow M \vee E$$

$$C1 \quad \neg T \vee M \vee E. \quad \checkmark$$

$$P2 \quad S \rightarrow \neg E$$

$$C2 \quad \neg S \vee \neg E. \quad \checkmark$$

$$P3 \quad T \wedge S$$

$$C3 \quad T \quad \checkmark$$

$$C \quad \therefore M.$$

$$C4 \quad S \quad \checkmark$$

$$C5 \quad \neg M. \quad \checkmark$$

$$\text{from } C1, C2 \quad \neg T \vee M \vee \neg S. \text{ --- } (6) \quad \checkmark$$

$$\text{from } C3, 6 \quad M \vee \neg S \text{ --- } (7) \quad \checkmark$$

$$\text{from } C4, 7 \quad M. \text{ --- } (8) \quad \checkmark$$

$$\text{from } C5, 8 \quad \square$$

Ex 6: 62:- p1 $\neg p \wedge q$

p2 $x \rightarrow p$

p3 $\neg x \rightarrow s$

p4 $s \rightarrow t$

c $\therefore t.$

c1 $\neg p. \checkmark$

c2 $q.$

c3 $\neg x \vee p. \checkmark$

c4 $x \vee s. \checkmark$

c5 $\neg s \vee t. \checkmark$

c6 $\neg t. \checkmark$

from c1c3 $\neg x. \text{---} \textcircled{7} \checkmark$

from c4, 7. $s. \text{---} \textcircled{8} \checkmark$

from c5, 8 $t. \text{---} \textcircled{9} \checkmark$

from c6, 9 $\perp. \text{---} \textcircled{10}$

Ex 7: 63:-

p1 $p \rightarrow q$

p2 $\neg p \rightarrow x$

p3 $x \rightarrow s$

c $\therefore \neg q. \rightarrow s.$

c1 $\neg p \vee q. \checkmark$

c2 $p \vee x. \checkmark$

c3 $\neg x \vee s. \checkmark$

c4. $\neg q. \checkmark$

c5 $\neg s. \checkmark$

from c1c2 $q, \vee x. \text{---} \textcircled{6} \checkmark$

from c3, 6 $q, \vee s. \text{---} \textcircled{7} \checkmark$

from c4, 7. $s. \text{---} \textcircled{8} \checkmark$

from c5, 8 $\perp. \text{---} \textcircled{9}$

Ex 9 63. p1 $L \rightarrow A$

c1

Ex 9.63. p1 $L \rightarrow A$ c1
 p2 $E \rightarrow \neg I$ c2
 p3 $A \rightarrow E$ c3
 C. $\therefore L \rightarrow \neg I$ c4
 c5.

SWI-PROLOG.

Do it yourself.

