

Unit 1

Practice II

Introduction to logics

1) Build the truth tables for the following prepositional forms.

Example:

$$\sim q \wedge \sim(p \wedge q) \rightarrow a$$

p	q	$\sim q$	$p \wedge q$	$\sim(p \wedge q)$	$\sim q \wedge \sim(p \wedge q)$	a
T	T	F	T	F	F	F
T	F	T	F	T	T	T
F	F	T	F	T	T	T
F	T	F	F	T	F	F

1. $\sim q \vee (p \wedge q)$
2. $\sim p \rightarrow q$
3. $p \wedge q \leftrightarrow q \wedge p$
4. $p \rightarrow q \leftrightarrow q \rightarrow p$
5. $a \wedge (b \vee \sim a)$

2) Interpret the previous prepositional forms.

3) Build the truth tables for the following prepositional forms

$$p \rightarrow (q \rightarrow r)$$

$$(p \wedge q) \rightarrow r$$

4) Build the truth tables for the following prepositional forms

$$(p \rightarrow q) \wedge (q \rightarrow r)$$

$$(p \rightarrow q) \rightarrow r$$

$$p \rightarrow (q \rightarrow r)$$