LAB 5

1. Given:

P ="You get good grade in the midterm exam"

Q ="You understand how to solve all the exercises in the book"

Print the Propositional form of the following statements:

(a) You get good grade in the midterm exam if you understand how to solve all the exercises in the book, and if you will get good grade in the midterm exam means you understand how to solve all the exercises in the book, .

(b) You understand how to solve all the exercises in the book, but you did not get good grade in the midterm exam

(c) By understand how to solve all the exercises in the book, you will get good grade in the midterm exam

2. Print the statements from Exercise 1. in "if ... then ... " or "... if and only if ..." natural language form.

3. Print the negation, converse and contrapositive of the "if ... then ..." statements you print from Exercise 2.

4. Find the truth table of:

a. $p \wedge q$

b. $\neg p \wedge \neg q$

c. $p \rightarrow \neg q$

5. Prove/Disprove the following arguments using truth table :

$p \rightarrow q$	$p \vee q$	$p \rightarrow q$	$p \rightarrow q$
p	$\neg q$	q	$\neg p$
$\therefore q$	$\therefore p$	$\therefore p$	$\therefore \neg q$

For example we have the truth table of the argument:

$q \rightarrow r$

$p \rightarrow q$

$\therefore p \rightarrow r$

p	q	r	$q \rightarrow r$	$p \rightarrow q$	$\therefore p \rightarrow r$
T	T	T	T	T	T
T	T	F	F	T	F
T	F	T	T	F	T
T	F	F	T	F	F
F	T	T	T	T	T
F	T	F	F	T	T
F	F	T	T	T	T
F	F	F	T	T	T

Therefore the argument is valid.