

Assignment 1 | FPGA Lab

Deeshant Sharma [EE21MTECH14002]

January 2022

1 Question

Using the truth table, state whether the following proposition is a tautology, contingency or a contradiction:

$$\neg(A \wedge B) \vee (\neg A \Rightarrow B)$$

2 Solution

2.1 Tautology

Truth Values are true for any combination of truth value of variables.

2.2 Contradiction

Truth Values are false for any combination of truth value of variables.

2.3 Contingency

Some Truth Values are true for some combination of truth value of variables and some truth value are false for truth value combination of other variables.

2.4 Truth Table

A	B	$A \wedge B$	$\neg(A \wedge B)$	$\neg A$	$(\neg A \Rightarrow B)$	$\neg(A \wedge B)(\neg A \Rightarrow B)$
T	T	T	F	F	T	T
T	F	F	T	F	T	T
F	T	F	T	T	T	T
F	F	F	T	T	F	T

"Since for all combination of A and B given proposition gives output as **true** hence, given proposition is a **Tautology**"