Logic and Set Theory | Nueva Vizcaya State University | Midterm Exam
O. D. Hombrebueno | College of Teacher Education | October 11, 2018

Name: _____

Course and Year: _____

Part 1. Give the truth value of each statement if t is true. Write T or F after the statement.

1. $\sim p \to t$
2. $\sim p \vee t$
3. $p \to (t \vee \sim p)$
4. $p \wedge \sim t$
5. $\sim (p \to t)$

Part 2. Give the truth value of each sentence. Write T or F after the sentence.

1. $p \wedge q$ if q is not true.
2. $p \to (p \vee q)$ if p is true.
3. $(\sim p \vee r) \vee (q \to s)$ if q is false.
4. $p \to (q \vee \sim r)$ if r is false.
5. $p \to q$ if $\sim (p \wedge q)$ is false.

Part 3. Find the truth value of each symbolic statement. Show your solution

1. Let p be true, q be false and r be true.

a. $r \to (p \to q)$ b. $\sim [(p \wedge q) \to (r \leftrightarrow q)]$

2. Let p be true, q be false and r be false.

a. $\sim p \to (q \wedge r)$ b. $\sim [(\sim q \wedge p) \leftrightarrow r] \to q$ c. $(\sim p \leftrightarrow \sim r) \vee [p \to (q \to r)]$

Part 4. Determine whether the statement is a tautology, a contradiction or indeterminate. Use a truth table to show your answer.

a. $\sim q \vee (p \to q)$ b. $p \to [(\sim q \to p) \wedge (q \vee \sim p)]$ c. $(p \wedge q) \wedge (q \to \sim p)$

Part 5.