Question: [15 Points] [CLO 1] Propositional Equivalences

Indicate whether the given sentence is true or false. In the answer column, write either **T** for "true" or **F** for "false".

Statement	Answer
1. A contingency is a proposition that is neither a tautology nor a contradiction.	**T**
2. $\neg p \wedge \neg q \equiv \neg(p \vee q)$	**T**
3. $p \wedge \mathbf{T} \equiv p$	**T**
4. $p \vee (p \wedge q) \equiv p$	**T**
5. $p \rightarrow q \equiv \neg p \vee q$	**T**
6. $p \leftrightarrow q \equiv (p \rightarrow q) \wedge (q \rightarrow p)$	**T**
7. $(p \rightarrow \neg q) \wedge (\neg q \rightarrow p) \equiv p \leftrightarrow \neg q$	**T**
8. A compound proposition is satisfiable **if and only if** its negation is a tautology.	**F**
9. $(s \vee t \vee u) \wedge (\neg s \vee \neg t \vee \neg u)$ is unsatisfiable.	**F**
10. $p_1 \vee p_2 \vee p_3 \vee p_4 \vee p_5 \vee p_6$ can be written as $\bigvee_{j=1}^{6} p_j$	**T**
11. Today is Thursday.	**T**
12. On coming Saturday (7 October), we have normal Sunday classes.	**T**