



Department: Mathematics & Statistics
Semester/Year: First /1435-1436
Duration: 25 minutes

Course Elements of sets and structures
Course Code: MAT 220

Quiz 1

Answer the following

Let P, Q and R be three statements.

1. Prove the following compound statements are

logically equivalent: $((P \Rightarrow Q) \wedge (P \Rightarrow R)) \equiv (P \Rightarrow (Q \wedge R))$.

2. Prove the following is logical equivalent using the stated laws

(**without** truth table): $(\neg P \Rightarrow (Q \Rightarrow R)) \equiv (Q \Rightarrow (P \vee R))$.

3- Show that the following statement is a tautology $((P \wedge (P \Rightarrow Q)) \Rightarrow Q$