Assignment #1
DS

1. Proof Laws of logic with the help of example.
2. Using law of Logic verify the logical Equivalence $\sim (\sim p \wedge q) \wedge (p \vee q) \equiv p$
3. Suppose that p and q are statements so that $p \rightarrow q$ is false. Find the truth values of each of the following [03 marks]
   a) $\sim p \rightarrow q$
   b) $p \vee q$
   c) $q \leftrightarrow p$
4. If A and B are two (possibly compound statements) such that $A \vee B$ is a contradiction, what can you say about A and B?
5. Consider the given Rules

   A = someone works hard for his success
   B = someone attends his lectures regularly
   C = someone solves his assignments by himself
   D = someone gets good score

   We know the following facts,

   a) If someone attends his lectures regularly and solves his assignment by himself he works hard.
   b) If someone works hard he gets good score.

   Suppose we know a student who attends his lectures regularly and solves his assignments by himself. Prove that this student get good score using Modus ponens, Modus tolens, And elimination and And Introduction rules.