TOPIC : 8 – Tutorial 2

1. Show that R∨S follows logically from the premises C∨D, (C∨D)→¬H, ¬H→(A∧¬B) and (A∧¬B)→(R∨S).
2. Show that (P→Q)∧ (R→S), (Q∧M)∧ (S→N), ¬(M∧N) and (P→R) ⇒ ¬P
3. Show that R∧(P∨Q) is a valid conclusion from the premises P∨Q, Q→R, P→M, ¬M.
4. Prove that the premises a→(b→c), d→(b∧¬c) and (a∧d) are inconsistent.
5. Prove that the premises P→Q, Q→R, R→S, S→¬R, P∧S are inconsistent.
6. Show that R→S can be derived from the premises P→(Q→S), ¬R∨P & Q
7. Using conditional proof prove that ¬P∨Q, ¬Q∨R, R→S ⇒ P→S
8. Prove that A⟶ $\neg D$ is a conclusion from the premises $A \longrightarrow B$ v C, $B \longrightarrow \neg A$ *and* $D \longrightarrow \neg C$ by using conditional proof.
9. Show that the following set of premises are inconsistent
   (i) If Jack misses many classes through illness, then he fails high school
   (ii) If Jack fails high school, then he is uneducated
   (iii) If Jack reads a lot of books, then he is not uneducated.
   (iv) Jack misses many classes through illness and reads a lot of books.
10. Show that the premises " One student in this class knows how to write a program in JAVA", and Everyone who knows how to write a program in JAVA can get a high paying job imply a conclusion " someone in the class can get high paying job.