

Provide Natural Deduction Proofs of
the following:

Logic Session - Mon 9th Oct - W3

Q1: Constructive: $\neg(A \wedge B) \rightarrow (A \rightarrow \neg B)$

Q2: Constructive: $(A \wedge B) \rightarrow ((A \rightarrow C) \rightarrow \neg(B \rightarrow \neg C))$

Q3: Constructive: $(A \vee B \vee C) \rightarrow \neg A \rightarrow (B \rightarrow A) \rightarrow (C \rightarrow D) \rightarrow D$

Q4: Constructive: $(P \rightarrow Q) \rightarrow (\neg Q \rightarrow \neg P)$

Q5: Constructive: $(A \rightarrow C) \wedge (B \rightarrow \neg C) \rightarrow \neg(A \wedge B)$

Q6: Constructive: Assuming Q , prove: $(Q \rightarrow R) \rightarrow R$

Q7: Constructive: $Q \rightarrow (Q \rightarrow R) \rightarrow R$

Q8: Constructive: $((P \wedge Q) \wedge R) \rightarrow (S \wedge T) \rightarrow Q \wedge S$