Question 12

We are given:

1. $(p \wedge t) \rightarrow (r \vee s)$

2. $q \rightarrow (u \wedge t)$

3. $u \rightarrow p$

4. $\neg s$

5. q

We want to show r.

1. $q \rightarrow (u \wedge t)$ (Hypothesis)

2. q (Hypothesis)

3. $u \wedge t$ (Modus Ponens of 1 and 2)

4. u (Simplification of 3)

5. t (Simplification of 3)

6. $u \rightarrow p$ (Hypothesis)

7. p (Modus Ponens of 4 and 5)

8. $(p \wedge t) \rightarrow (r \vee s)$

9. $r \vee s$ (Modus Ponens of 8, 7 and 5)

10. $\neg s$ (Hypothesis)

11. r (Disjunctive Syllogism of 9 and 10)