#10.

a) $R \rightarrow P$
b) $Q \leftrightarrow (R \vee \sim P)$
c) $\sim (Q \wedge R)$

#11. $\sim(p \vee \sim q) \vee (\sim p \wedge \sim q)$

- $(\sim p \vee q) \vee (\sim p \wedge \sim q)$ Double Negative Law
- $(\sim p \vee q) \vee \sim(p \vee q)$ De Morgan's Laws
- $(\sim p \vee q) \vee \sim q$ Associative
- $\sim p \vee (q \vee \sim q)$ Negation Law
- $\sim p \vee T$ Domination Law

#12.

p	q	r	$p \rightarrow q$	$(p \rightarrow q) \vee r$
T	T	T	T	T
T	T	F	T	T
T	F	T	F	T
T	F	F	F	F
F	T	T	T	T
F	T	F	T	T
F	F	T	T	T
F	F	F	T	T

p	q	r	$p \wedge \sim q$	$\sim((p \wedge \sim q) \wedge \sim r)$
T	T	T	F	T
T	T	F	F	T
T	F	T	T	T
T	F	F	T	F
F	T	T	T	T
F	T	F	T	T
F	F	T	T	T
F	F	F	T	T

Yes they are equivalent