

## ii) Associative Laws

$$* (p \wedge q) \wedge r \equiv p \wedge (q \wedge r)$$

$$* (p \vee q) \vee r \equiv p \vee (q \vee r)$$

## iii) Distributive Laws:

$$* p \wedge (q \vee r) \equiv (p \wedge q) \vee (p \wedge r)$$

(Conjunction over Disjunction)

$$* p \vee (q \wedge r) \equiv (p \vee q) \wedge (p \vee r)$$

(Disjunction over Conjunction)

## iv) De Morgan's Laws:

$$* \neg(p \wedge q) \equiv \neg p \vee \neg q$$

(Negation over Conjunction)

$$* \neg(p \vee q) \equiv \neg p \wedge \neg q$$

(Negation over Disjunction)

## v) Double Negation:

$$* \neg \neg p \equiv p$$

(double negation elimination)