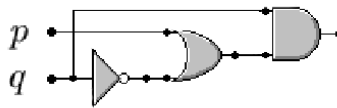


Logical gates and expressions

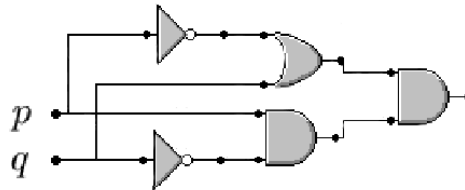
- (i) Write pseudo-code for the logical function AND (\wedge), OR (\vee), XOR (\oplus) and NOT (\neg) using the arithmetic operators and a function MAX which, applied to a list, returns the largest element of the list.

Write algebraic statements for each of the following circuit diagrams.

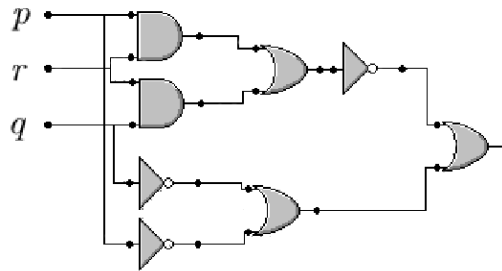
(ii)



(iii)



(iv)



Draw circuit diagrams for each of the following expressions of classical logic.

(v)

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

(vi)

$$\neg p \wedge (q \vee \neg r)$$

(vii)

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