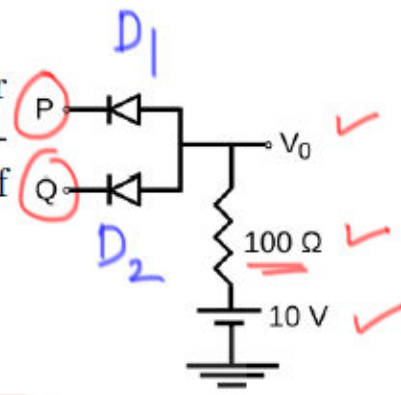


54. In the given circuit, the input voltages at P and Q could be either 0 V or 10 V. Use the fact that a diode under forward bias is a short circuit, and under reverse bias is an open circuit. The truth table of the circuit will be that of

- A an AND Gate.  
 B an OR Gate.

- C a NAND Gate.  
 D a NOR Gate.



P	Q	$V_0$
10	10	10
10	0	0
0	10	0
0	0	0

$P: 10V, Q: 0V$ .  $D_2$ : forward biased.

Current flows.  $V_0$  is low (0)

Similarly, for  $P: 0V \neq Q: 10V$ .

$P: 0V, Q: 0V$ :  $D_1 \& D_2$ : forward biased.

current flows!  $V_0$  is low (0)

## Qubit

$P: 10V$   
 $Q: 10V$

} No current flows  $\Rightarrow$  No voltage drop.

$V_0$  is high (10).