



a)

i)

$$\text{ii) } \begin{array}{r} 45 \\ \hline 2 \end{array}$$

$$= 045$$

iii)

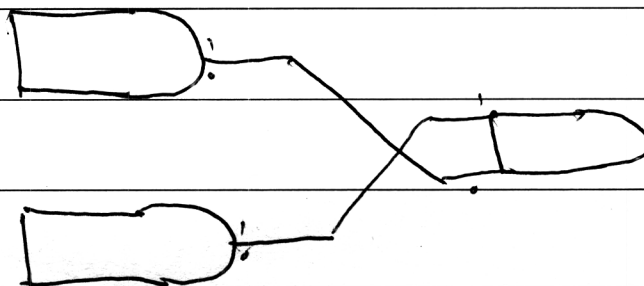
$$\begin{array}{r} 1110 \\ 011 \\ \hline 0110 \end{array}$$

$$= 0110$$

b)

i)

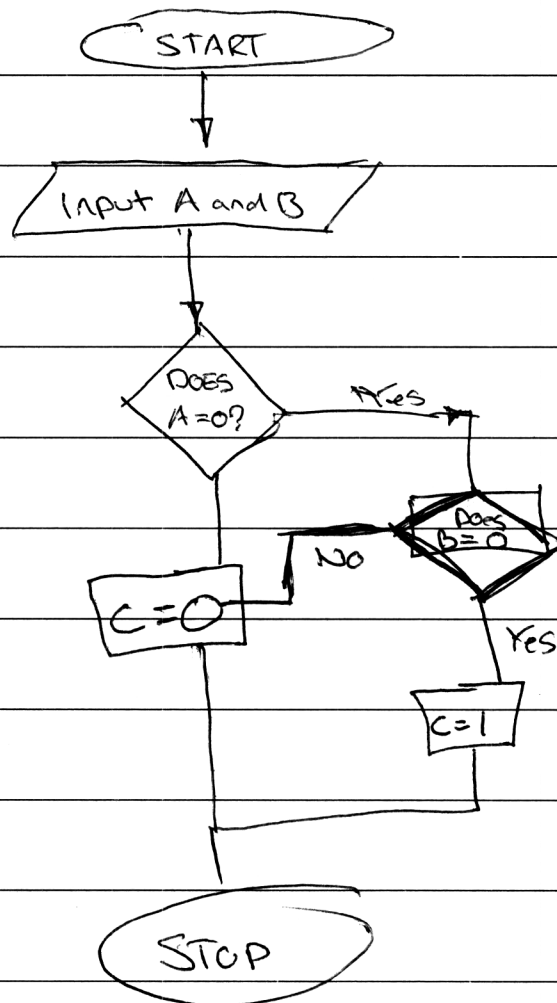
A flip-flop takes two sources of DATA and using them for a particular input or a single source.

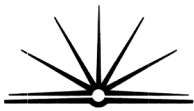


b) ii)

~~A~~ ~~B~~ ~~0~~

A	B	C
1	0	0
0	1	0
0	0	1





c) The data stream that would be sent to the central computer would contain the information gathered from the employees finger print. After the central computer analyses wheather the finger print is a match or not it sends a data-stream of a boolean value of Yes or No. Yes, to open the door because the finger print is a match and the user is permitted on the premisise or No, to keep the door closed because there were no matches to that certain print, and therefore the user is not allowed on the premises.