

(a) (i) converted to decimal then to binary.

(ii) C2

(iii)
$$\begin{array}{r} 1110 - \\ 0111 \\ \hline 0111 \end{array}$$

1000

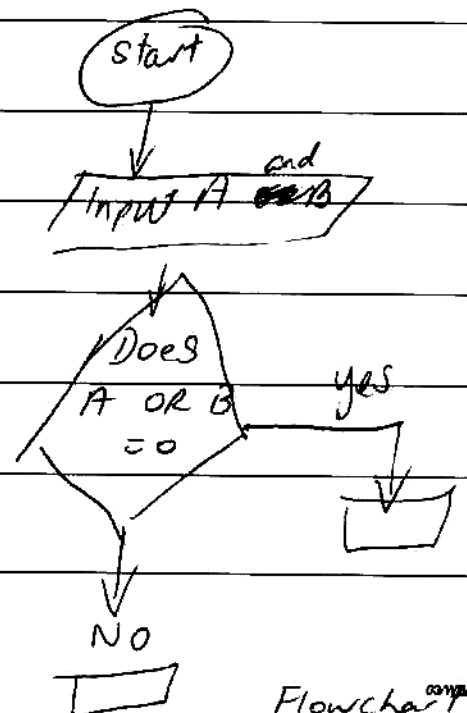
$$\begin{array}{r} 1110 - \\ 0111 \\ \hline 1000 \end{array}$$

(b) (i) The function of a flip flop is to be able to perform a calculation from data stored in different locations.

(ii)

Inputs		outputs
A	B	
0	0	0
1	0	0
1	1	1

Truth table





①

There would be a header for the data sent from the scanner to the central computer this would probably be fingerprint. If the finger print was validated it would probably send the header open to the door if not it would send the header close. The character 1 could mean open and the character 0 could mean close.