Question 25

(a)(i)

(ii) 45 = 00101101 = 2D

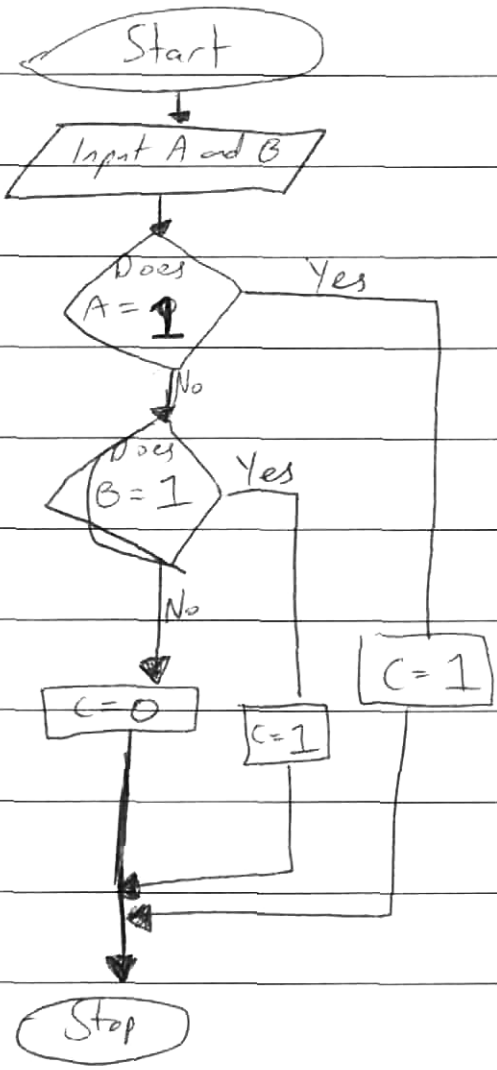
(iii)
$$\begin{array}{r} 1\,\cancel{1}\,\cancel{1}\,0 \\ -\,0\,1\,1\,1 \\ \hline 1\,1\,1 \end{array}$$

(b) (i) A flip-flop is used to store things in memory as their value is recurring and will remain the same until a new value is brought in

(ii)

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

(b)(ii)



(c) After the employee has had their finger scanned the information sent to the central computer would be divided into 3 section. The first section is the header information which alerts the central computer to the type of information that it has to process which in this case would be identifying a fingerprint.

~~fees~~ Following the header information would be

the data characters which is the main point of the information sent. This would mainly be the ~~image of the fingerprint~~. request for opening the door.

The third section is the trailer information which carries the information needed for the central computer to make the decision which would be the picture of the fingerprint.

On the return trip the information is divided up into these same section and this time the Header information would be the identifier telling what it is replying to.

The data characters this time would give the actual decision to open the door and the trailer information is extra information such as who the employee is.