i) The fraction is split up into power of two's. ~~[illegible]~~ highest power of two that the number contains is subtracted from the fraction and a one is put in the place for the power of two. The ~~[illegible]~~ next lower power of two is then tested to see if it goes into the number and if it does the sequence for the first power is repeated this goes on ~~[illegible]~~ until 2^0 after which a binary point (floating), is placed and then it moves on to negative powers of two until sufficient decimal places are covered or total = 0.

ii) 45 : 00101101

= 2D

1110 - 0111

one comp of 0111 = 1000

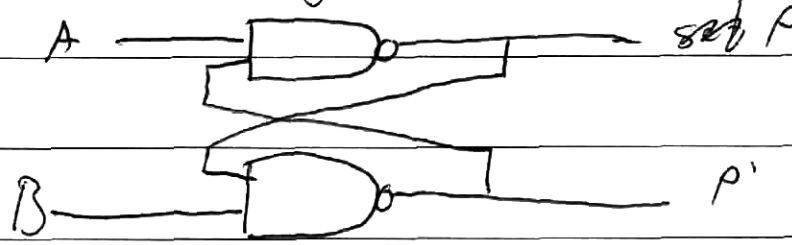
two's = 1001

1110 +
1001

X 0111 = 0111

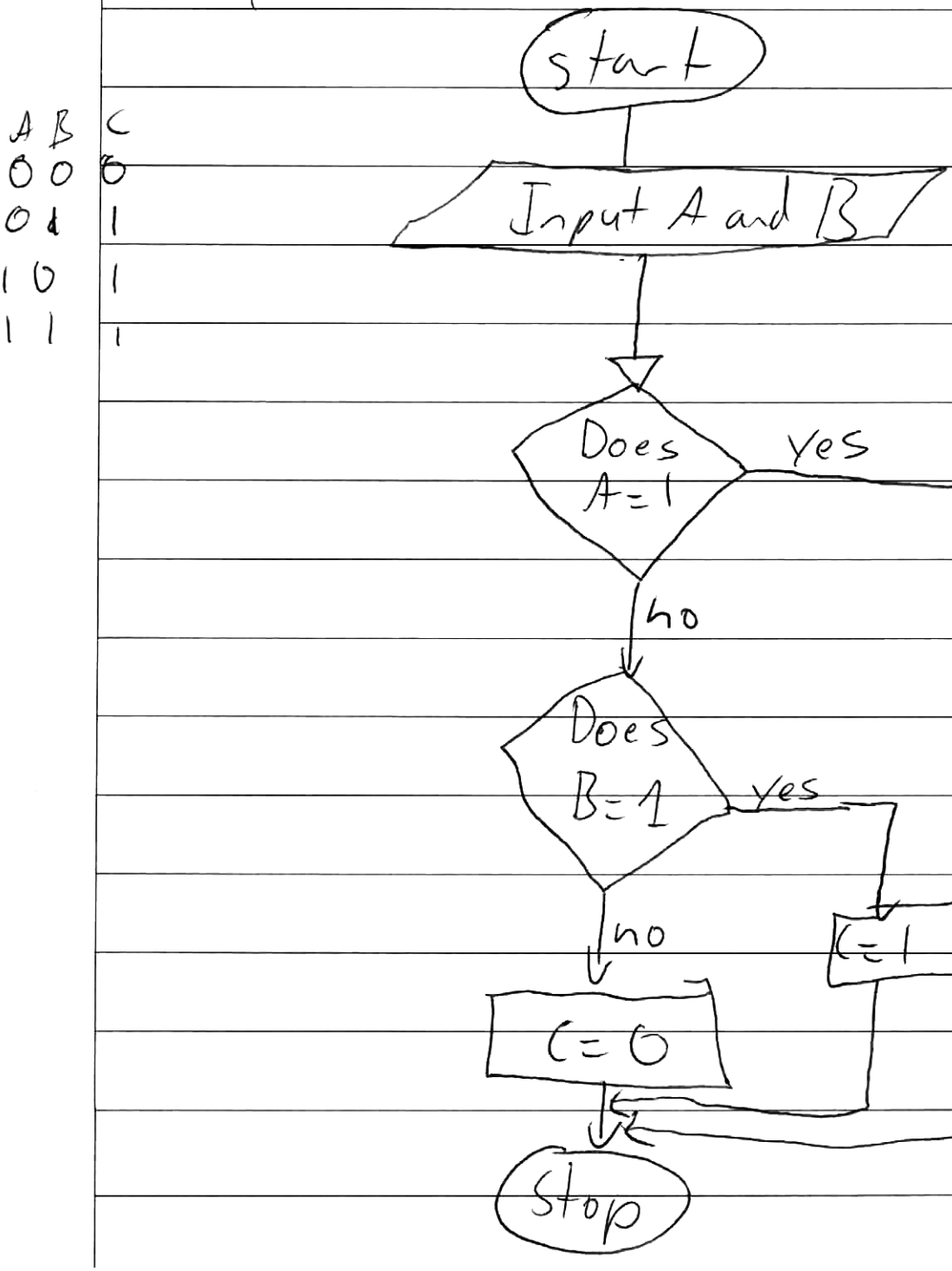
∴ 1110 - 0111 = 0111

b) A flip-flop is designed to store a binary digit. It uses the output from one NAnd/NOr gate as one of the inputs for the other gate.



(b)

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



e) The data being sent to the computer from a scanner will have a header indicating that the data is finger print data (image) to be analysed and matched with a database. The stream being sent to the door will have a header indicating it is an instruction to open or close the door.

The actual data characters from the ~~saanne~~ scanner will be alot longer than the door data as the finger print will need alot of data to be precise while the door only needs a simple boolean open or close data character.

They both will have checking in the header and trailer but the checking fo- the finger print data will be longer as ~~there is~~ and more ~~thoroughou~~ thorough

because the finger print data is longer and it needs to be more careful than the door data. Both the data streams however will ~~read~~ have the same sort of structure.