Experiment No.7: Design a circuit that outputs 2's compliment of a 3 bit number using encoder and decoder.

Objective:

i) Draw the circuit using decoder and to encode which should able to take 3 bit binary number and convert it into 2's complement.

Required components:

i) 74LS 138

ii) 74LS 148

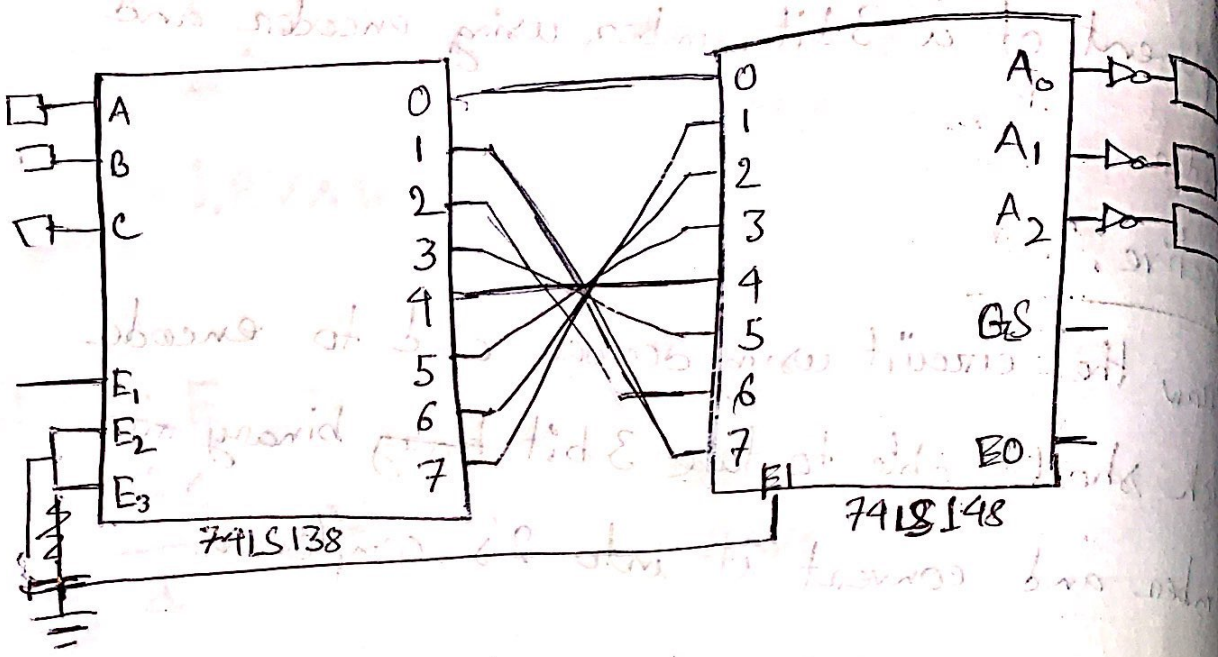
iii) Logic state

iv) Logic probe

v) Not gate.

vi) Ground

Experimental Setup:



Result and discussion:

In the above circuit ~~for the~~ we are getting the 2's compliment of the 3bit binary number. NOT gate is for the Active low output.

a

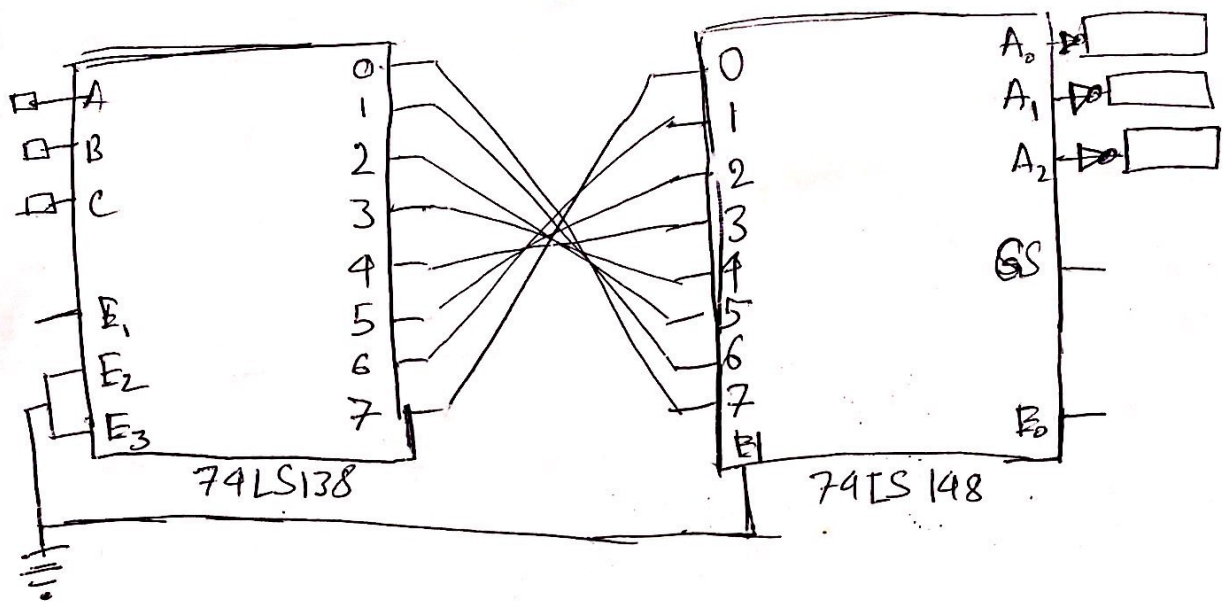


Fig: Decoder Encoder of the 1's complement of a 3 bit number output

b

Yes, it is possible to implement a code converter with encoder and decoder. We can design a BCD to excess-3 code converter using 4X16 decoders and 16X4 encoders. Here we take (0-9) and get the (+3) excess-3 numbers as output from the converter.