1.

(a).

F1 =

(b).

//Commutative

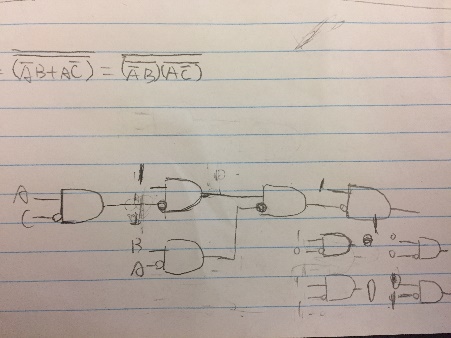
//Distributive+Complement+Idempotent+Simplification Laws

//Distributive+Complement

//Consensus+Simplification Laws

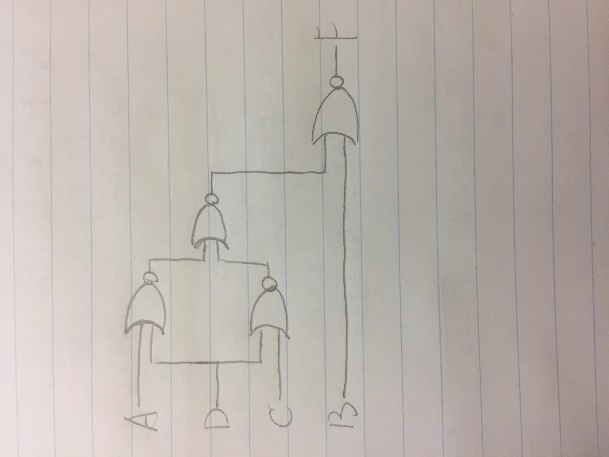
//Distributive+Simplification Laws

2.



3.

F=



4.

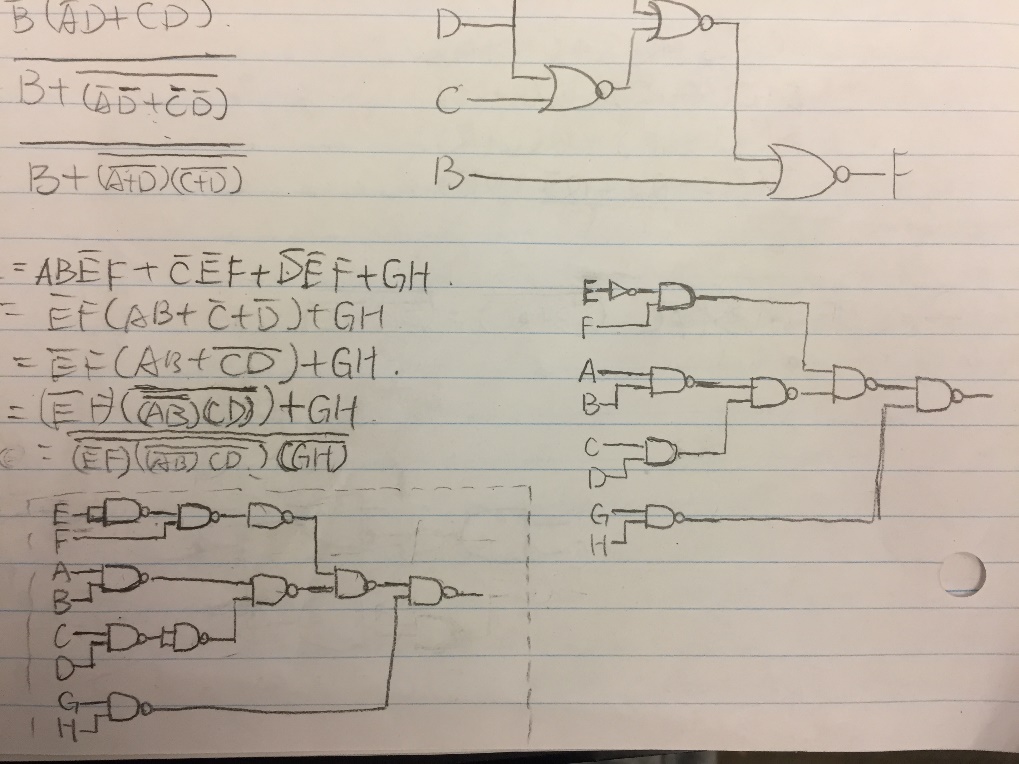
Z

Z

Z

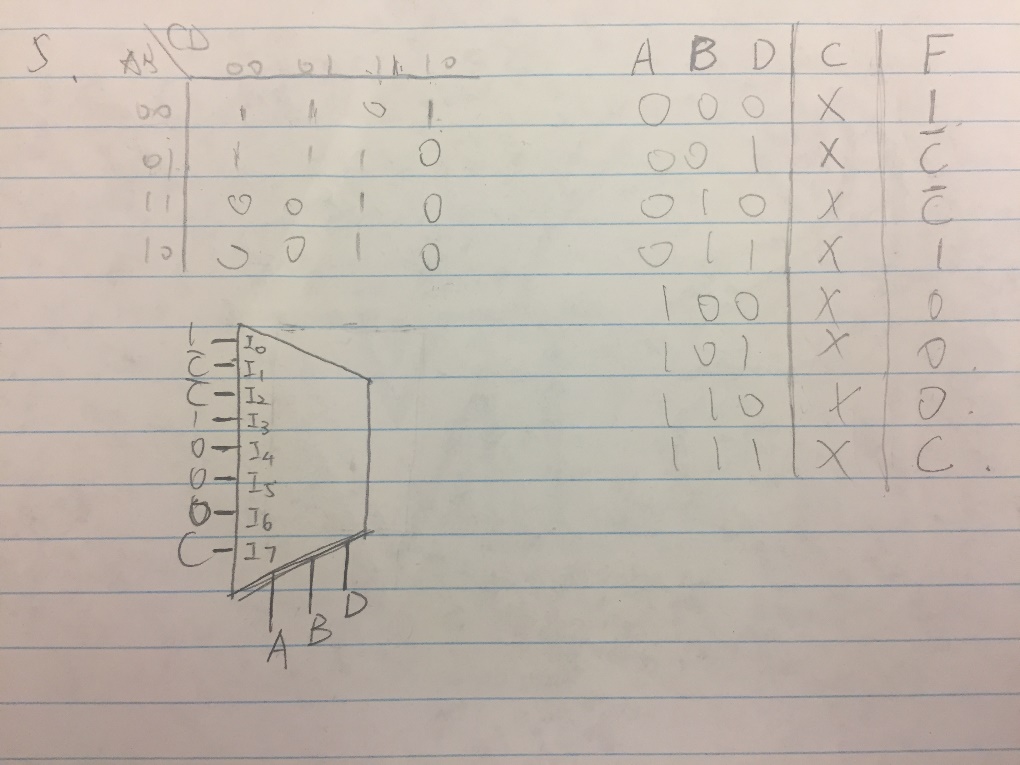
Z

Z



5.

(a).



(b).