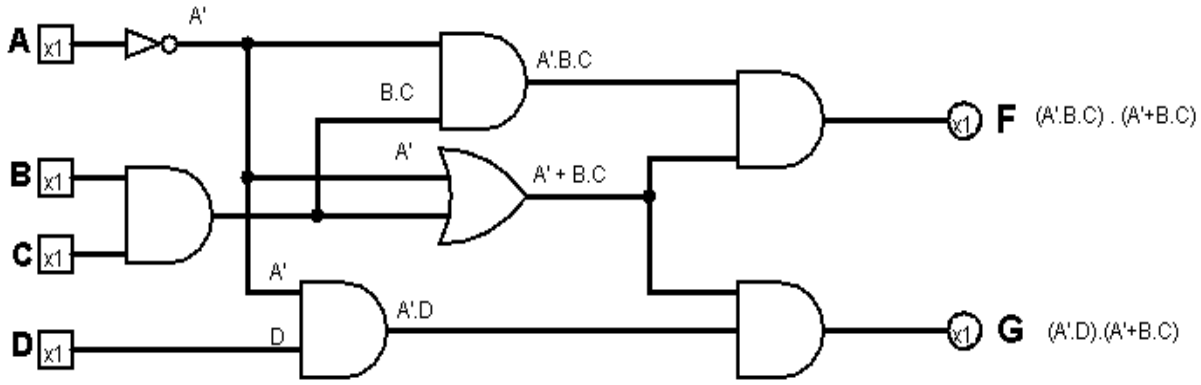
Lab #1 (MODEL ANSWER)

Q1: (5 points) Obtain the simplified Boolean expressions for output F and G in terms of the input variables in the circuit of the following figure:



Using Boolean algebra:

$$F = (\bar{A}.B.C).(\bar{A} + B.C)$$
$$= \bar{A}BC\bar{A} + \bar{A}BCBC$$
$$= \bar{A}BC + \bar{A}BC$$
$$= BC.(\bar{A} + \bar{A})$$
$$= B.C.\bar{A}$$

$$G = (\bar{A}.D).(\bar{A} + B.C)$$
$$= \bar{A}D\bar{A} + \bar{A}DBC$$
$$= \bar{A}D + \bar{A}DBC$$
$$= \bar{A}D.(1 + BC)$$
$$= \bar{A}D$$

Q1: (5 points) Draw the logic circuits for the simplified Boolean expression from Q1 using Logisim software.