

1) Create the transistor diagram that implements the following Boolean formulas

A) $\text{Out} = \text{NOT}((\text{A OR B}) \text{ AND } \text{C})$

B) $\text{Out} = (\text{A AND B}) \text{ OR } \text{C}$

2) The following is the specification for a state machine based on an elevator controller

- 4 floors: B, 1, 2, 3
- Input:
 - Button: 1 up, 0 down
- Output:
 - Motor Controller: 10 up, 01 down, 00 no change
 - Status lights: Turn on one light per floor above basement, first floor 1 light, third floor 3 lights, etc.

A) Draw the state diagram for this state machine

B) Now fill in the state table/truth table for the state machine

Inputs			Outputs						
Button	S1	S0	S1'	S0'	Light1	Light2	Light3	Motor MSB	Motor LSB

C) Now draw the circuit diagram