

## Lab 2 Combination Logic

### EET 207

Based on material in chapter 5 on Karnaugh state machine design, the following lab experiment can be completed.

#### Car Buzzer

Design a circuit to ring a buzzer in a car base on the condition of the driver's door, the key in the ignition, and the head light switch.

Inputs:

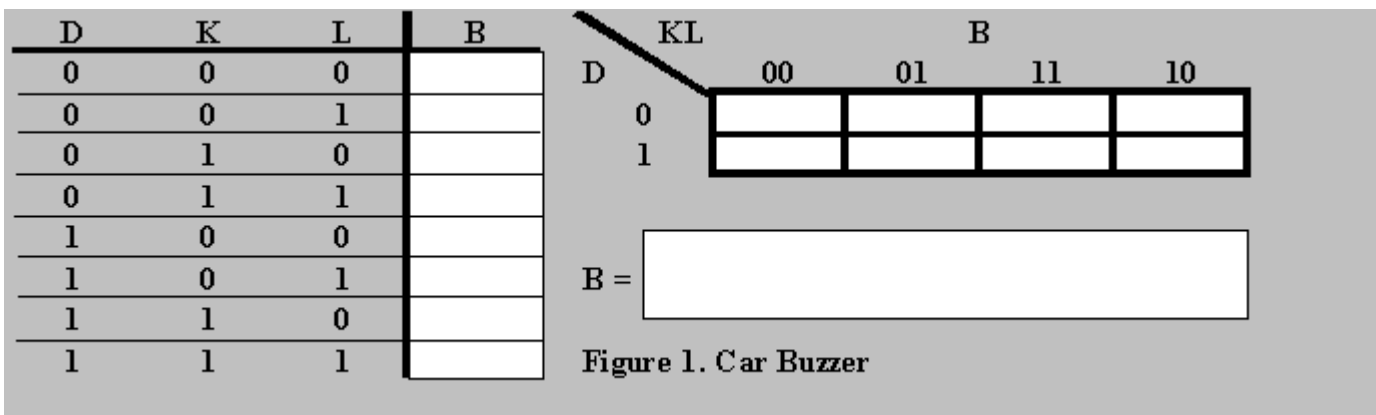
- D is 1 when the driver's door is open, 0 when closed.
- K is 1 when the keys are in the ignition, 0 otherwise.
- L is 1 when the head lights are switched on, 0 otherwise.

Output:

- B causes the buzzer to sound when it is 1. The buzzer does not sound when B is 0.

The buzzer should sound (assert) when:

1. Door is open and key is in ignition
2. Door is open and lights are on



Fill out the truth table and Karnaugh map in Figure 1 with the class, and write the equation for B. In your lab report, draw the circuit to implement B. Be sure to include the types of ICs used, and pin numbers.

**Build your own:**

- Build your circuit with any of the available parts. Explain any learning as you hook it up. (Be sure to check your logic before building so you do not need to rearrange your hookup)
- Explain your test procedure, and how your test insures proper operation.
- As you are testing, note what errors you found either in your logic, or hookup.
- In your conclusion explain anything you learned in this lab. It may be a review, but often small things will give the “Aha!” experience.